VOLUME 176

INDEX

JULY-DECEMBER 1989

JULY: pp. 1-174 AUGUST: pp. 175-300 SEPTEMBER: pp. 301-422

OCTOBER: pp. 423-556 NOVEMBER: pp. 557-686 DECEMBER: pp. 687-822

Titles and illustrations in boldface

A

Abbeys: France: Cluny 37, Flavigny-sur-Ozerain 144, Mont-Saint-Michel **69**
Abell, Sam, photographer: ***The Shakers' Brief Eternity.*** Sept., 302-325
Abercrombie, Thomas J.: ***Unsettled Immigrants.*** July, 121-129
Academic Press, San Diego, Calif. 188
Acid rain. Dec. President's Page
Acoustic spectrum: Diagram **266-267**
Acropolis, Copán (site), Honduras 490, **490-491,** 492, **494-495,** 496
Acupuncture treatment for addiction 619
Adachi Museum, Japan: Window view **652-653**
Adams, John: Envoy to France 53
Adams, John W. 193
Adams, Richard 463, 465
Adamson, Robert: Photo by **537**
Advanced Materials—Reshaping Our Lives. By Thomas Y. Canby. Dec., 746-781
Africa *see* Egypt; Kenya; Malawi; Mozambique; South Africa; Zaire; Zimbabwe
African wildlife *see* Elephants
AfroCuba jazz orchestra: Performance **283**
Age of Enlightenment: Influence on the French Revolution 28, 29, 32; Philosophy 50
Agurcia Fasquelle, Ricardo 504; ***Copán: A Royal Maya Tomb Discovered.*** NGS research grant. Oct. 480-487
AIDS: Malawi 378, 380
Air-raid shelters: Hanoi, Vietnam 578, 582
Air shows: French Air Force **58-59**
Airbus A320 (jetliner) 93, 94-95; Diagrams **92-93**
Airbus Industrie 92, 93, 96
Aircraft: Composite materials 746, 748-749, 774, 776; Metal fatigue accident **748-749,** 749, 779
Aircraft carriers: Jet landing practice 193-194; Jet take off **181**
Aircraft industry: Washington 786, 787, 807, 811
Airplanes: Biplane factory, France 164; *see also* Jet aircraft
Airports: ***Bird Control Uses...What Else...Birds!*** Oct. Geographica
Aké (site), Mexico **455**
Alar: Chemical growth regulator 805-806
Alaska: Oil spill (1989): ***Tragedy in Alaska Waters.*** By Douglas B. Lee. Aug., 260-263; Oil exploration **254, 258-259,** offshore 236, **256-257;** Pipeline map 262
Alaska, Gulf of: ***Tragedy in Alaska Waters.*** By Douglas B. Lee. Aug., 260-263
Albumen photographic prints **534-535, 541;** Sepia-toned **546**
Alexius I Comnenus, Emperor (Byzantine Empire) 345, 347, 348; Crusader swearing fealty to **349;** Nicaea surrender to 349-350, 353
Alfred, Me.: Village map **312-313**
Algerians in France 124, **128,** 129
Allard, William Albert, photographer: ***The Business of Chic.*** July, 147-157; On Assignment, in France. July
Alloys: ***Advanced Materials—Reshaping Our Lives.*** By Thomas Y. Canby. Dec., 746-781
Aloha Airlines: Metal fatigue accident **748-749,** 749, 779
Alpaca hair: ***Halting the Importation of Bolivian Textiles.*** Sept. Geographica
Alps (mountains), Europe **66-67;** Tour de France (1988) **135**
Altamirano, Sofía **737**
Altars, Maya **496, 497,** 499-500, 501, 502, 504
Altun Ha (site), Belize **452**
Aluminum 758; Composite materials made from 778, 780
Aluminum alloys: Aircraft construction 748, 779; Intermetallics 778, 780; Lithium 779; Metal fatigue 748, 749, 779
Aluminum oxide 766, **767**
Alzheimer's Family Day Care Center, San Diego, Calif. **202**
Ambergris Cay, Belize 464, 465
Ambos Mundos Hotel, Havana, Cuba 291, 296
Amboseli National Park, Kenya: Elephant research 268, voiceprints **268-269, 272-273, 274, 276-277;** Elephants **268-269;** Map locating 265
Ambrotype **539**
Amennakhte (scribe): ***Oldest Geologic Map, Fit for a Pharaoh.*** Nov. Geographica
Amerasians 611, 614, **614,** 618
American Cartographic Association: ***No Square Corners on a Round World.*** Sept. Geographica
American Revolution: French aid 24, 25, 28; Influence on France 29; ***Two Revolutions.*** By Charles McCarry. July, 50-55
America's Cup: Litigation over 1988 race 189
Amiens, France: Cathedral **108-113**
Amman, Jordan: Palestinian refugees **360**
An Duong Vuong, King (Vietnam) 573, 585
Anatolia (region), Turkey: First Crusade 348-349, 350, 351-354, 356-357
Anderson, Roger N. 256, 258-259
Andilokbe clan (Efe people): ***The Efe: Archers of the African Rain Forest.*** By Robert C. Bailey. NGS research grant. Nov., 664-686
Andreas, Alfred T.: ***Personalized Maps for the Masses.*** Dec. Geographica
Andrew, Saint 357
Andrews, Joann 448-449
Angelou, Maya: ***They Came to Stay.*** Aug., 208
Angkor, Kampuchea: ***Restoring the Splendor of Angkor Wat.*** July Geographica
Animal communication *see* Communication, animal
Animal sacrifice: Maya **497,** 501
Animism: Cuban derivations 297, 299
Ankle implants **756**
Anna Comnena, Princess (Byzantine Empire): Memoirs 348
Annapurna Conservation Area Project (preserve), Nepal: ***Annapurna: Sanctuary for the Himalaya.*** By Galen Rowell. Sept., 391-405
  Creation 396, 397, 398; Initial opposition 398
  Director 398, 404
  Land use: Cultivation **392-393,** 396, **405;** Map 397
  Litter 394, **399;** Cleanup efforts 400
  Local inhabitants: Alternative energy use 396, 397, **400-401,** 404; Population 397, 398; Preserve management 395-396, 397, 398, **399,** 400, 404
  Size 395, 397
  Trekkers 395, 396, 397, 398, **399,** 400, 404; Campsite **394-395;** Entrance fee 395, 398; Number visiting 398; Teahouse-lodges serving 400, 404
Anointing oil: ***Vial of Anointing Oil Found in Israeli Cave.*** Oct. Geographica
Anteaters: Golden silky **459;** Tamandua **459**
Anthropology, physical: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
Antioch, Turkey: Citadel near **357;** First Crusade sieges 356-357; Holy lance found 357; Roman road **356-357**
Antonelli, Juan Bautista 291
Ants: Aphid mutualism 416, **417;** Pheromones 416
Anza-Borrego Desert, Calif.: Citrus groves **198-199**
Anza-Borrego Desert State Park, San Diego County, Calif. 183

ao dai (garment) 572, **603**
Aoki, Shigeyuki: Aphid soldiers discovered by 409
Aphids: ***Samurai Aphids: Survival Under Siege.*** By Mark W. Moffett. Sept., 406-422
Apollinaire, Guillaume **163,** 170
Apple orchards: Yakima Valley, Wash. **804**
Apples: Washington 785, 786, 787, 805-806
Arabian oryx: Reintroduction to wild 190
Arabs in France 121, 124, 128
Arbey, Pierre 140-141, **143,** 145
Arc de Triomphe, Paris, France **6, 7,** 164, **165**
Arce, Fernando **734**
Arce, Francisco **733, 734;** Family **734;** Ranch 733, 736
Arce, Loreto 733
Arce, María **734**
Archaeology: ***A Castle Under the Louvre.*** By Peter Miller. July, 102-107; ***Florida Law Dictates Respect for the Past.*** Nov. Geographica; ***Herculaneum's Dead Still Tell Tales.*** Oct. Geographica; ***Vial of Anointing Oil Found in Israeli Cave.*** Oct. Geographica; *see also* Maya
Archaeology, underwater: ***The* Bismarck *Found.*** By Robert D. Ballard. Nov., 622-637; ***Heyday of the Horse Ferry.*** By Donald G. Shomette. Oct., 548-556; ***Nostalgic Dives Yield New Shipwreck Finds.*** July Geographica
Archer, Frederick Scott 539, 541
Archers of the African Rain Forest. By Robert C. Bailey. NGS research grant. Nov., 664-686
Architecture: ***The Gothic Revolution.*** Photos by James L. Stanfield and Victor R. Boswell, Jr. July, 108-119; High-tech buildings **64-65;** ***The World's Tallest Building-to-Be.*** Nov. Geographica
Arctic expeditions: ***"Time Capsule" Floats from the Pole to Ireland.*** Aug. Geographica
Ardennes (horse breed) **332,** 336, 339, **340,** 341
Arensburg, Baruch: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
Argo (camera sled) **625,** 631, 632; Equipment 625
Arianespace: Chairman 97; Rocket development 4, **93**
Arizona: ***Dating the Kayenta, Sorting Out Evolution.*** Dec. Geographica
Ark Royal (aircraft carrier): Pursuit of *Bismarck* 628; Torpedo plane attacks on *Bismarck* 628
Arles, France: Bullfighting **70-71**
Arms, artificial **753, 754-755**
Arrows, poison **672,** 678, 686
Art, medieval: ***The Gothic Revolution.*** Photos by James L. Stanfield and Victor R. Boswell, Jr. July, 108-119; Illustrations **333, 345, 349, 364**
Art, modern: ***Paris:* La Belle Époque.** By Eugen Weber. July, 158-174
Art, Pre-Columbian: ***Mexico Celebrates Recovery of Stolen Art.*** Nov. Geographica
Art, Renaissance: ***A Renaissance for Michelangelo.*** By David Jeffery. Dec., 688-713
Art galleries *see* The Louvre
Art restoration: Sistine Chapel **687,** ***A Renaissance for Michelangelo.*** By David Jeffery. Dec., 688-713, ***Dec. cover***
Arthus-Bertrand, Yann: On Assignment, in France. July; photographer: ***Tour de France—An Annual Madness.*** July, 132-137
Artificial limbs: ***Advanced Materials—Reshaping Our Lives.*** By Thomas Y. Canby. Dec., 746-781
Artillery shells, unexploded: Vietnam 600
Artists: ***A Renaissance for Michelangelo.*** By David Jeffery. Dec., 688-713
Ascanius, Lake, Turkey **350-351**
Asia: *Asia-Pacific; Western Pacific Rim.* Nov. supplement; Nov. Editor's Page; *see also* Holy Land; Japan; Middle East; Nepal; Vietnam
Asian Americans: San Diego 200, **200**
Asian water buffalo: Guatemala: Beef cattle substitute 441
Asphalt: Mesopotamians used as building material 233
Astrodome, Houston, Tex.: Oil exploration trade show 256, 258-259
Astrology: Vietnam 602
Astronomy: ***Is That a Planet Circling HD 114762?*** July Geographica
Atitlán, Lake, Guatemala 472, 473
Atitlán giant pied-billed grebe 456, **457,** 472
Atlases: ***Personalized Maps for the Masses.*** Dec. Geographica
Atoms: Bonding 759, 763; Electron shells 757, **758-759,** 759; Inert 759; *see also* Elements
Aubry, Charles: Photo by **546**
Aurora borealis: ***Red-tinged Auroras To Be Remembered.*** Nov. Geographica
Australia: ***Crossing Australia in a Camel Caravan.*** July Geographica; Oil industry 255
Austria: Blacksmith **340;** Shrine **326-327**
Austrian Camp (meadow), Annapurna region, Nepal **394-395**
Auto race: Baja 1000 off-road race 725, contestants **687, 725**
Automobile engines: Ceramic 746, 764, 766, 767, 769, diagrams **769;** Plastic **768**
Automobiles: Catalytic converters, ceramic 767, **768;** Composite materials parts 778; Crankshaft **781;** Plastic parts 770, 772, 773
Aux Deux Magots (café), Paris, France: Initiation party **84-85**
Avocado production: San Diego County, Calif. 199
Avril, Jane: Painting **166**
Aymara culture: ***Halting the Importation of Bolivian Textiles.*** Sept. Geographica

B

Ba Dinh district, Hanoi, Vietnam 589
Bacalar, Mexico: Massacre 463-464
Back Beach, Vung Tau, Vietnam 619
Bagley, Rod **768**
Bailey, Robert C. **668;** ***The Efe: Archers of the African Rain Forest.*** NGS research grant. Nov., 664-686; On Assignment, with Efe Pygmies in Zaire. Nov.
Baird's tapir **459**
Baja California, Mexico:
Baja California: Mexico's Land Apart. By Don Belt. Dec., 714-745
Aquifers 723, 738, 745
Auto race 725; Contestant **725**
Climate 721, 729; Aridity 721, 723, 729, 731
Desert 721, 729, 731, 738; Oases **719,** 731, 733, 734, 738-739
Development 722-723, 725, 731, 739
Discovery 724, 731
Farms **722-723,** 733, 738, 739, **740-741,** 745
Fishermen 739, **742-743, 745**
Fishing, commercial 722, 725, 739, 741, **742-743,** 744; Foreign ships 742-743, 744
Fishing, sport 722, 739, 742, 743
Indians **726-727,** 729; Disease decimated 724, 726, 739
Irrigation **722-723,** 733, 738; Drip irrigation 738, **740-741**
Map 724
Plate tectonics 721, 729
Population 721; Distribution 721
Roads: Paved 724-725, 729; Unpaved **714,** 729
Tourists 722, 724, 725, 731, **731,** 739, 743, 744; Students 725, **725**
Water 731, 738-739, 740, 745
San Diego—Where Two Californias Meet. By Neil Morgan. Aug., 176-205
Baja 1000 off-road race: Contestants **687, 725;** Home 725
Bakelite 770
Baker, Josephine 174, **174**
Bakery: Darcey, France 140, 141, 143
Balboa Park, San Diego, Calif. 184; San Diego Zoo 182, 188, 190
Baldwin of Boulogne: Hostage in Hungary 344; Map of crusade route 334-335
Ball courts: Maya **483, 490, 491,494**
Ballard, Robert D. **820;** ***The* Bismarck *Found.*** Nov., 622-637; *Jason* project 819
Ballard, Todd **625**
Ballet Russe: 1928 reunion **170**
Bamboo aphids: ***Samurai Aphids: Survival Under Siege.*** By Mark W. Moffett. Sept., 406-422
Banda, Hastings Kamuzu: ***Malawi: Faces of a Quiet Land.*** By Paul Theroux. Sept., 371-389
Bangor, Wash.: Dockside **796;** Submarine base 797

Bao Dai, Emperor (Vietnam): Abdication 597
Baratti, Bruno 696, **707**
Barbey, Bruno: On Assignment, in France. July
Barcelona, Spain: Oil exploration offshore 239, computer applications **238-239**
Barium 757, 760
Barker, Mildred 304, **305,** 309, 321, 322, 325
Barn, round **312**
Barrio youth programs: San Diego, Calif. **194,** 200, 202
Bartlett, Des and Jen 275
Bass, George F.: ***Nostalgic Dives Yield New Shipwreck Finds.*** July Geographica
Bastille (prison), Paris: Fall of 19, 20, 26, 50, painting depicting **18-19;** Key 50; Voltaire, imprisoned 28
Bastille Day celebrations: Bicentennial (1989) 24, 48, opposition to 24, **32,** 48; First anniversary 30, 48; Marseille, France 129; Paris, France **6,** 20
Batista, Fulgencio 280; U. S. support 289
Battle ram (warship) **549**
Battleship, wrecked *see Bismarck*
Baudelaire, Charles: Opinion of photography 532, 536, 546
Bay Islands, Honduras 438, 440
Bayard, Hippolyte: Photos by **533,** 541
Beach, Sylvia **173**
Bear, dancing **344**
Beato, Felice 544
Beaufort Sea: Oil exploration **256-257**
Beauty contest: Hanoi, Vietnam 572, 588, **588**
Becan (site), Mexico 450, **453**
Bednorz, Georg 760
Beech Aircraft Corporation: Composite materials use 748-749, 774; Factory **748**
Beetles: ***When the Trees Cry, Do the Beetles Hear?*** Dec. Geographica
Belgium: Castle **332-333;** Crusade journey reenactment **332,** 341; Crusader knight *see* Godfrey of Bouillon
Belize: *Land of the Maya, A Traveler's Map; The Ancient Maya World.* Oct. supplement; ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479
Belize City, Belize 464
Bello Romero, Angel **293**
Belmopan, Belize 464
Belt, Annie Griffiths, photographer: ***Baja California: Mexico's Land Apart.*** Dec., 714-745
Belt, Don: ***Baja California: Mexico's Land Apart.*** Dec., 714-745; ***Letters from France.*** By Don Belt, Cathy Newman, and Cliff Tarpy. July, 56-91
ben Jelloun, Tahar **129**
Bennett College, Greensboro, N. C.: President 211, **211**
Berg, Judith Kay: Elephant vocalization study 266
Bernhardt, Sarah **167**
Berre-l'Étang, France: Arab wedding 124
Bethune, Zina **752**
Bhaud, Julie **83**
Bhulbhule, Nepal: Trekkers **399**
Bible Lands *see* Holy Land
Bicentennial of the French Revolution: ***France: Bicentennial of the Great Revolution.*** July, 1-174
Bicycle race: ***Tour de France—An Annual Madness.*** By Gilbert Duclos-Lassalle. July, 132-137
Bicycles: French popularity 167; Hanoi, Vietnam **558-560,** 561, factories 572, **584-585**
Bietti, Ludovic **88**
Bike-a-thon: ***A Ride for Wildlife.*** Oct. President's Page
Biodegradability: Plastics 751, 772
Biography *see* Michelangelo
Biosphere reserves: Middle America 437; UNESCO rules governing 438, 473, 475, 478; *see also* Calakmul Biosphere Reserve; Maya Biosphere Reserve; Sian Ka'an Biosphere Reserve
Biotechnology: San Diego 185, 188, 203; Research **203;** Washington 787, 812
Bir Bikram Shah, Prince Gyanendra (Nepal) 398
Birchall, Derek 780, 781
Bird watching: Yucatán 466, 473
Birds: ***Bird Control Uses...What Else...Birds!*** Oct. Geographica; Middle America **448-449,** 449, **456-458,** 465, 466-467, 472-473; Songbird population decline 467; ***A Welcome Increase in Condor Hatchings.*** Oct. Geographica
Bisel, Sara: ***Herculaneum's Dead Still Tell Tales.*** Oct. Geographica
Bishop, Barry C. Sept. President's Page
Bismarck (German battleship): ***The* Bismarck *Found.*** By Robert D. Ballard. Nov., 622-637
Bismuth 758, 760
Black Americans: ***"I Dream A World": America's Black Women.*** By Brian Lanker. Aug., 209-225
Black howler monkey **434,** 435
Blacksburg, Va.: X-30 (hypersonic jet), half-size model **779**
Blacksmith: Austria **340**
Blackwell, Unita **223;** Election 223
Blake, James 463-464, 465
Blanc, Mont, France **66-67**
Blennies, crested **513**
Bloodletting, ritual: Maya 442; Lancets 501
Bock, Judith. Oct. President's Page
Bocuse, Paul 76, **77**
Boeing, William Edward, Sr. 807, 811
Boeing 737: Metal fatigue accident **748-749,** 749, 779
Boeing 747-400s: Detailing **794-795**
Boeing Company 807, 811; Airliner orders 787, 794
Bois, Valérie **142**
Bolivia: ***Halting the Importation of Bolivian Textiles.*** Sept. Geographica
Bolwerk, Cees **228-229**
Bombers (high school football team) 803; Booster **807**
Bon-Pasteur, Rue du, Marseille, France: Mosque 127-128; Muslims praying **125,** 128
Bonaparte, Napoleon *see* Napoleon I
Bond, William H., artist: ***High Tech: The Future Is Now.*** July, 92-101
Bone artifact: Maya **468**
Bones, prostheses for **754-756**
Bonetti, Pier Giorgio 696, 697, 698, **702,** ***Dec. cover***
bonnet rouge (red cap): Symbol of the French Revolution **26**
Bonneville Power Administration: Bond interest 803
Bonsai: Japanese maple **645**
Boojum (tree) 729, **739**
Border Patrol *see* U. S. Border Patrol
Boswell, Victor R., Jr., photographer: ***The Gothic Revolution.*** July, 108-119; ***A Renaissance for Michelangelo.*** Dec., 688-713; On Assignment, in the Sistine Chapel. Dec.
Bouillon, Belgium: Castle **332-333,** 341, 365; Crusader knight *see* Godfrey of Bouillon
Bowen, Barry 450, 464, 465, 466
Bowen, Martin **625**
Bowls, Maya **486, 487**
Box, centennial: ***A Bygone Century Comes to Light.*** By Robert M. Poole. Sept., 366-369
Bradley, Bill 818
Bradsher, Monica 821
Braiding: Composite materials 774, **775,** 776
Brash, Roger 229, 241, **241,** 242, 243, 245
Breeder reactors: France **97**
Bridges: Collapse **777,** causes 776, 780; Eight-fold garden bridge **656,** 662; Unsafe 776, 780
Bronowski, Jacob: Office 185
Bronson, Rick 440, 441, 450
Bronze Age shipwrecks: ***Nostalgic Dives Yield New Shipwreck Finds.*** July Geographica
Brooks, Gwendolyn **223;** Pulitzer Prize for poetry (1950) 223
Broom, flat: Invention 318
Brown, Arnold 465, 466
Brown lacewing: Larvae **422,** samurai aphid predators 422
Brown pelicans **715-716, 742**
Browne, Malcolm W.: Photo by **601**
bu 661
Buddhism: ***In a Japanese Garden.*** By Bruce A. Coats. Nov., 638-663; Monastery **573;** Monks **594, 601**
Buddhist monks: ***Muli: In the Footsteps of Joseph F. Rock.*** Dec. Geographica; ***Rebuilding a Monastery on the World's Roof.*** Sept. Geographica
Buffalo *see* Water buffalo
Buffalo Bill Returns to Medal of Honor Roll. Dec. Geographica
Buffy, Maurice and Ida **144**
Bulgaria: Crusade journey reenactment 345, 348
Bulletproof vest: Kevlar 772
Bullfighting: Arles, France **70-71**

bun 661
Bunting, Bruce 396, 398
Burger, Warren E. **367**
Burgundy (region), France: ***Darcey: A Village That Refuses to Die.*** By William S. Ellis. July, 138-145
Burlington teamboat: ***Heyday of the Horse Ferry.*** By Donald G. Shomette. Oct., 548-556
The Business of Chic. By Nina Hyde. July, 147-157
Bussell, Joshua: Map by **312-313**
Butz' Chan (Maya ruler): Stone portrait **497**
A Bygone Century Comes to Light. By Robert M. Poole. Sept., 366-369
Byzantine Empire: Emperor *see* Alexius I Comnenus; First Crusade 345, 347, 348, crusader swearing fealty **349,** Nicaea surrender 349-350, 351, 353

C

ca dao (folk song): Lyrics 602
Cableway: Maya sites. Oct. Editor's Page
Cabo San Lucas, Baja California Sur, Mexico: Development 722-723, 731; Ferry **731;** Fishing, sport 722, 742; Tourists 722, 731, **731,** 742
Cabrillo, Juan Rodríguez: San Diego Bay, discovery of 183
Cacao beans as Maya currency 440
Cadoria, Sherian Grace **215;** Promotion to brigadier-general 215
Cafés: Darcey, France 140, 141, 145; Paris, France **162,** 167-168, 174
Calakmul (site), Mexico **428-429,** 449, 450, **460,** 461, 463; Artifacts 450, **460, 461**
Calakmul Biosphere Reserve, Mexico 428-429, 436, 438, 449-450, 461, 466
Calculator, mechanical 98
Calendars: French Revolution calendar adopted (1793) 26, 32, 39, 40, revoked (1806) 26; Maya 502
California: ***San Diego—Where Two Californias Meet.*** By Neil Morgan. Aug., 176-205
California, Gulf of: ***Baja California: Mexico's Land Apart.*** By Don Belt. Dec., 714-745
California condors: Breeding project 188; ***A Welcome Increase in Condor Hatchings.*** Oct. Geographica
Californios 733, **734, 735, 737;** Name origin 733
Cambodia: ***Restoring the Splendor of Angkor Wat.*** July Geographica
Cambodian immigrants: San Diego, Calif. **200**
Camels: ***Crossing Australia in a Camel Caravan.*** July Geographica
Cameras: ***Seizing the Light: Photography's First Fifty Years.*** By Erla Zwingle. Oct., 530-547
Cameron, Julia Margaret: Photos by **540,** 544
Camouflage: Dwarf ladybugs 420, **420,** 421; ***It's a Twig, a Catkin...No! It's a Caterpillar!*** Oct. Geographica
Camp Pendleton Marine Corps Base, San Diego County, Calif. 180, 183
Campeche, Mexico 463
Campeche quarter, Old Havana, Cuba: José Martí home 290
Can Ek (Maya ruler) 468, 469
Canada: Geography test results 816, 817
Canady, Alexa **222;** Neurosurgery directorship 222
Canby, Thomas Y.: ***Advanced Materials—Reshaping Our Lives.*** Dec., 746-781
Cancan **158-159,** 168
Cancún, Mexico 441, **441,** 445
Candlelight procession: Mariazell, Austria **326-327**
Candlestand, Shaker: Auction record 321
Cannes, France: Cheese-aging caves near **73-74**
Canoes: Concrete 780; Maya 438, 440, 450, **469**
Canterbury, N. H.: Shaker community 314, 316, covenant dispute 314, 321-325, dwelling house **320-321**
Capital punishment: France: Abolished 44, last executioner **45;** Guillotine **21,** 26, 36, 42
Cappadocia (region), Turkey: Rock church frescoes **330-331**
Captive-breeding programs: ***A Welcome Increase in Condor Hatchings.*** Oct. Geographica
Caravans, camel: ***Crossing Australia in a Camel Caravan.*** July Geographica
Carbon-carbon composites 774, 776, 778
Carbon fibers: Composite materials 746, 748, 752
Carbon steel 759
Carcinogens: Alar 805-806
Cardinal: Mexico **442**
Caribbean region *see* Cuba; Yucatán Peninsula
Carmichael, Leonard C. Sept. President's Page
Carnevali, Domenico: Sistine Chapel restoration 700, repainted hand by **707**
Carp **662**
Carr, Frances **305,** 314, 321
Carrier, Jean-Baptiste: Massacres ordered by 42, 44
Carroll, Raymonde. July President's Page
Cars: Ho Chi Minh City, Vietnam 606, **606-607**
Cartography: ***No Square Corners on a Round World.*** Sept. Geographica; ***Oldest Geologic Map, Fit for a Pharaoh.*** Nov. Geographica; ***A Treasure of a Map Barely Evades Auction.*** Aug. Geographica
Cartoon: Fresco painting 697, **705**
Cascade Range, Canada-U. S. 786, 790, 794-795, 797, 803
Castillo (temple), Tulum, Mexico 444-445, **453-454**
Castles: Bouillon, Belgium **332-333,** 341, 365; ***A Castle Under the Louvre.*** By Peter Miller. July, 102-107; France **58-59, 61, 68, 80-81, 140**
Castro, Fidel 280, 289, 299; African tour 297; Hemingway's influence 291; Aug. Editor's Page
Castro, Miguel **726**
Castro, Teresa **727**
Cat, in Paris restaurant **61**
Catacombs, Paris **86-87,** 87
Catalytic converters: Ceramic 767, **768;** Inventor **768**
Catamaran-hulled craft **556**
Caterpillars: *Dipha aphidivora* **418-419;** ***It's a Twig, a Catkin...No! It's a Caterpillar!*** Oct. Geographica
Cathedrals: ***The Gothic Revolution.*** Photos by James L. Stanfield and Victor R. Boswell, Jr. July, 108-119; Havana, Cuba **282-284,** 299
Cauac Sky (Maya ruler) 500
Caves: Cheese aging **73-74;** ***World War I Memories Live in French Caves.*** July Geographica
Cayuse Indians: Massacre (1847) 786
Celestún, Mexico: Bird habitat 448-449, **448-449**
Cellulose: Trees 773, 774
Cement: ***Advanced Materials—Reshaping Our Lives.*** By Thomas Y. Canby. Dec., 746-781
Cemeteries: ***Florida Law Dictates Respect for the Past.*** Nov. Geographica; Jewish **337**
Cenotes: Mexico **444-445**
Centennial of the U. S. Presidency: ***A Bygone Century Comes to Light.*** By Robert M. Poole. Sept., 366-369
Center for Marine Conservation: ***Cleaning Up the Coastlines.*** Nov. Geographica
Center for Reproduction of Endangered Species, San Diego, Calif. 188, 190
Central America: *Land of the Maya, A Traveler's Map; The Ancient Maya World.* Oct. supplement; ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479; *see also* Copán
Ceramic (test car) 766, **769**
Ceramic fever: Japan 764, 766
Ceramic-matrix composites 764, 778
Ceramics: ***Advanced Materials—Reshaping Our Lives.*** By Thomas Y. Canby. Dec., 746-781
Auto engines 746, 764, 766, 767, 768, 769; Cars using 766, 767, **769;** Diagrams **769**
Brittleness 763, 764, 766; Defenses against 764, 766, 767, diagram **764**
Components 757, 758, 759, 766, 767, **767**
Crystalline structure 764; Diagram **764**
History 763
Production 766
Products 764, 766, **766,** 767, **768**
Properties 750
Research 764 *see also* Superconductors, *below*
Superconductors, high-temperature 748, 760, 761, **761,** 763; Discovery 748, 760
Uses 746, 764, 766 *see also* Auto engines, *above*

Cerezo Arévalo, Marco Vinicio: Biosphere reserve agreement with Mexico 436, 438, meeting **475,** 478; Conference with Maya leaders 471, **471**
Chac (Maya deity): Ceremony attendants dressed as **497**
Chairs: Shaker design **306-307,** 309, 319, **320,** auction prices 321
Challenger, H.M.S.: ***A New, Long Look at Mid-Atlantic Ridge.*** Dec. Geographica
Chambaudet, Crystel **82, 83**
Chambéry, France: Les Charmettes **29**
Chambord, Château de, France **58-59**
Chamonix, France **66-67**
A champion of research. By Gilbert M. Grosvenor. Sept. President's Page
Champlain, Lake, Canada-U. S.: ***Heyday of the Horse Ferry.*** By Donald G. Shomette. Oct., 548-556
Chan Chich (site), Belize **452,** 466, **466-467**
Charcoal production: Malawi 386-387
Charif, Russ 269, 271-272
Charles V, King (France): Louvre additions 102, painting of **103**
Charles VI, King (France) 105; Helmet **105**
Charter, Roger 746; Artificial legs 746, **747**
Chartres, France: Cathedral: Stained glass window **114**
Charula, Danger **381**
Château Bouillon, Bouillon, Belgium **332-333,** 341; Legend of the Jerusalem flowers 365
Châteaux: France: Chambord **58-59,** Cheverny **61,** Darcey **140,** Josselin **80-81,** Montfort **68**
Chavaniac (estate), France **31**
Cheeses, aging in cave **73-74**
Chemical degradation: Plastics 751, 772
Chert lance heads: Maya artifacts **492, 493,** 501
Chevalier, Marcel **45**
Cheverny, Château de, France **61**
Chiapas (state), Mexico: Slash-and-burn farming **438**
Chiba, Japan: Garden design students **656**
Chicago, Ill.: ***The World's Tallest Building-to-Be.*** Nov. Geographica
Chichén Itzá (site), Mexico 469; Observatory 450, **453**
Chichewa (language) 375, 382, 389
Chikanga, Brighton **379**
Children's Defense Fund 207; Founder **206**
Chimpanzees: ***Wild Chimps' Status to Be Ruled Endangered.*** Aug. Geographica
Chin, artificial **754**
China: Vietnam, invasions of 561, 570, 573, 585, 593
Chinese: Vietnam 614, 619; Washington 807
Cholon, Ho Chi Minh City, Vietnam 611, 619
Chomrong, Nepal 396, 404, **405**
Chotard, Yvon 131
Christianity: *Holy Land,* Special Places of the World map series. Dec. supplement; *see also* Crusades; Shakers
Chua Tay Phuong (monastery), Hanoi, Vietnam: Novice **573**
Cíbola (legendary land): ***A Zuni National Park: 1,600 Years of History.*** Sept. Geographica
Cigar factory: Cuba **297**
Circumcision ritual, Muslim 354
cirit (horseback game) **354-355**
Citadel, Hue, Vietnam 595, 597; Noon Gate **597**
Citrus groves: San Diego County, Calif. **198-199**
City Heights, San Diego County, Calif.: Youth gang 197, 200
City of Kings and Commoners: Copán. By George E. Stuart. Oct., 488-505
City planning: Maya symbolism 496
Ciudad Constitución, Baja California Sur, Mexico: Aquifer 738, 745; Farms 731, 738, 745
Ciudad Insurgentes, Baja California Sur, Mexico: Irrigated fields **722-723**
Civil War, U. S.: Fredericksburg casualties **542-543;** Impact on Shaker communities 316
Clarke, Michael Hughes **240**
Clarksville, Tenn.: Racial integration 213
Clay eating: ***Eating Clay Tablets as an Act of Faith.*** Dec. Geographica
Cleaning Up the Coastlines. Nov. Geographica
Climate, global: Effect of rain forests 435, Oct. Editor's Page
Clothing industry: France: ***The Business of Chic.*** By Nina Hyde. July, 147-157; United States: Mexican workers 202
Co Loa (site), Vietnam 585; Temple **573**
Coats, Bruce A.: ***In a Japanese Garden.*** Nov., 638-663
Cocaine: San Diego, Calif. 197
Cochlear implant **754**
Cockade, tricolor **26,** 29, **49,** 50
Coconut palms: ***Disease Still Killing Mexico's Palm Trees.*** July Geographica
Cocteau, Jean 156, 170, **170**
Codices, Maya 483; Burning of 447
Cody, William F.: ***Buffalo Bill Returns to Medal of Honor Roll.*** Dec. Geographica
Coffins: Vietnam War casualties **576-577**
cofradías: Guatemala City meeting **470,** 471, **471**
Colalucci, Gianluigi 696, 697, 700, **700,** 701, **703;** On Assignment, in the Sistine Chapel. Dec.
Colette 168, **169**
Collective farms: Vietnam 570, **580-581,** 581
Collodion wet plates 532, 539, 541; Prints from **534-535,** 539
Coloman, King (Hungary) 343-344
Colonial palace, Havana, Cuba: Restoration **294-295**
Colorado River, U. S.-Mexico: Delta **717-718,** 721
Columbia River, Canada-U. S.: Irrigation 786; Salmon fishing 811
Columbus, Christopher: Burial in Cuba 281, 299; Contact with Maya 438, 440, 469
Colville Indian Reservation, Wash.: Horse race **800-801**
Common murre: Oil spill victim **261**
Communication, animal: ***Elephant Talk.*** By Katharine Payne. NGS research grant. Aug., 264-277; Aug. President's Page
Communications: ***High Tech: The Future is Now.*** By Michael E. Long. July, 92-101
Composite materials: ***Advanced Materials—Reshaping Our Lives.*** By Thomas Y. Canby. Dec., 746-781
Aircraft construction 746, 748-749, 774
Auto engines **768**
Components 758, 759
Diagram **774**
Natural 773, 774
Production 749, 774, **775,** 776
Prostheses made from 746, **747, 753, 754-756**
Research 777, 778
Sports equipment 746, 749, 773
Strength 773, 774
Computer applications: Artificial arms 752; ***High Tech: The Future Is Now.*** By Michael E. Long. July, 92-101; Oil exploration **238-239,** 249, 254, "integrated expert systems" 256, 258; "smart" materials 781
Computer circuitry: Superconductor application 763
Computer graphics: Advanced materials revolution 752
Computer mapping: Sistine Chapel ceiling **712, 713**
Computer programming language chosen as a standard (Ada) 101
Computer-software companies: Washington 787, 811-812
Conciergerie (palace), Paris, France **44-45, 46-47;** French Revolution 33, 44, 46
Concrete: Advanced material uses 746, 752, 780
Condors, California: Breeding project 188; ***A Welcome Increase in Condor Hatchings.*** Oct. Geographica
Confucian temples: Vietnam 572, **573,** 575
Congo, People's Republic of the: Pygmies 665
Connecticut Turnpike, Conn.: Bridge collapse **777,** cause 776
Conner, Dennis **189**
Conservation: ***Annapurna: Sanctuary for the Himalaya.*** By Galen Rowell. Sept., 391-405; ***Cleaning Up the Coastlines.*** Nov. Geographica; ***EPA's Wetland Goal: No Net Loss.*** Aug. Geographica; ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479; ***Tidying the "World's Highest Trash Pit."*** Oct. Geographica; Oct. Editor's Page

Conservation Foundation: ***EPA's Wetland Goal: No Net Loss.*** Aug. Geographica
Constantinople, Turkey: First Crusade 334, 341, 346, 347, 348
Constellation, U.S.S. 193
Constitutions: France (1791) 26, 30, Tennis Court Oath 24, 26, painting of **24-25**
Containment boom: Prince William Sound, Alas., oil spill **260-261**
Cook, James: New Zealand explorations 515, 516
Copán (site), Honduras 455; ***Copán: A Royal Maya Tomb Discovered.*** By Ricardo Agurcia Fasquelle and William L. Fash, Jr. NGS research grant. Oct., 480-487; ***Copán: City of Kings and Commoners.*** By George E. Stuart. Oct., 488-505
Acropolis 490, **490-491,** 492, **494-495,** 496
Altars **496, 497,** 499, 501, 502, 504
Artifacts **482,** 483, 499, 501; Eccentric flints **492, 493,** 501; Jade **484, 485,** 498, 500-501; Pottery **481,** 482, **482, 483, 484, 486, 487,** 498, 499
Ball court **483, 490, 491, 494**
Cemetery 498
City plan: Aerial view **494-495;** Map 495; Symbolism of decor and alignment 496, 504
Decline 495, 502, 504
Glyphs 492, **496, 497, 498, 503,** 504, **504**
Hieroglyphic Stairway 482, **494, 499,** 500, 504
Population 498, 501, 502
Royal tomb **480-481,** 482, **482, 484;** Diagram **483;** Skeletal remains 485, 486
Rulers 488, **491,** 496, 499, 500, 502, 504; Dynasty founder 496, 497, stela **498,** 504; Stone portraits **488-489, 496, 497,** 499, 500
Sculpture **488-489, 505**
Stelae **455,** 488, 496, **498,** 500, 504
UNESCO world heritage site designation 481
Copán Mosaics Project, Copán (site), Honduras 500, 504
Copán River, Honduras 492, 496
Copley, Helen K. 196
Coppola, Luis, Jr. 742-743, 745
Coppola Bonillas, Luis 721, 722, 723
Coral: Black coral **517, 522-523;** Reef **432-433**
Corcoran Gallery of Art, Washington, D. C.: Exhibition 225
Corday, Charlotte: Murder of Jean-Paul Marat 41
Cormorant, double-crested: Beak, deformed: ***Great Lakes Pollution: Still Dangerous.*** Dec. Geographica
Cornell Laboratory of Ornithology, Cornell University, Ithaca, N. Y.: Elephant vocalization study 266
Coronado, Francisco Vásquez de: ***A Zuni National Park: 1,600 Years of History.*** Sept. Geographica
Corpus cavernosum: Penile prostheses **752**
Cortés, Hernán 440, 469
Cortés, Sea of *see* California, Gulf of
Cosby, Bill: Shaker furniture collection 319
Côte d'Azur, France: High-rise apartments **69**
couture: Definition 150; *see also* Fashion industry
Covalent bonding 759, 763
Cover illustrations, NGM:
July: Fireworks behind the Eiffel Tower
August: Elephants
September: Yugoslav villager
October: Maya teenagers
November: Vietnamese sampan dweller
December: Sistine Chapel restoration
Crack cocaine: San Diego 197
Crankshaft, racing-car **781**
Crawshay, Robert: Ambrotype by **539**
Crayfish, red **518,** 519
Creamer, Michael 445
Crémieux, Alain 99-100
Creys-Malville, France: Nuclear fast-breeder reactor **97**
Crips (youth gang) 197, 200
Crook, Tom **625**
Crosby, Bing: Baja California fishing trips 722
Crossbows: French 102; Vietnamese legend of the magic trigger 585
Crossing Australia in a Camel Caravan. July Geographica
Cruise ship: Yucatán **441**
Crusades: ***Retracing the First Crusade.*** By Tim Severin. Sept., 326-365; Sept. Editor's Page
Antioch sieges 356-357
Call for 334, 335, 345, 347
Constantinople: Rendezvous point 334, 341, 346, 348; Sacking feared 347, 348
Godfrey of Bouillon **333, 345, 349;** Death 336, 365
Horses 336, 339, 341; Casualties 343, 351, 354; Cavalry 336, 339, 351, 354
Hungary, crossing of 343-344
Jerusalem captured 334, 335, 361, 363, **364,** 365; Kingdom established 365
Map of routes 334-335
Nicaea captured 349-350, 351, 352-353
Peasants' crusade 334, 341, 348-349
Pillaging 341, 347, 357, 363
Slaughter of non-Christians 334, 336, 341, 361, 364
Cruzob (Maya cult) 463-464
Crystals: Ceramics 764, diagram **764;** Metals 776, 779, 780, diagram **776**
Cu Chi, Vietnam: Tunnel complex **616, 617,** 619
Cu Ix (Maya ruler): Stone portrait **496**
Cuba: ***The Many Lives of Old Havana.*** By Joseph Judge. Aug., 278-300; Aug. Editor's Page
Cuban uprising (1868) 290-291
Cushman, Robert **399,** 400, 404
Cyrano de Bergerac, Savinjen de: Sketch **167**
Czeisler, Charles: ***Lighting the Way to a Jet-lag Solution.*** Dec. Geographica

D

DNA: Research 190, **203**
Daguerre, Louis-Jacques-Mandé 530, 532, 536; Photo by **533**
Daguerreotypes 530, 532, **533,** 536, **536,** 541; Camera **532;** Invention 98
Dai Noi (citadel), Hue, Vietnam 595, 597; Noon Gate **597**
Daichiji temple, near Kyoto, Japan: Garden **638-639**
d'Allest, Frédéric 97
Damascus, Syria: Crusades 359; Mosque **358-359**
Dance, modern: Pioneer 216
Danton, Georges-Jacques 30, 31, 32, 40; Guillotined 33, 44
Darcey, France: ***Darcey: A Village That Refuses to Die.*** By William S. Ellis. July, 138-145
Darrington, Wash.: Ethnic diversity 797; Population 798
Da Silva, José Marquez 144-145
Dating the Kayenta, Sorting Out Evolution. Dec. Geographica
Davis, Angela Yvonne 214, **214**
Day of the Dead: Celebrants ***Oct. cover;*** Kite flying **473**
Deary, Ferig and Pambuka **385**
Death mask: Jean-Paul Marat **41**
Declaration of the Rights of Man and of the Citizen 26, 29, 48, 54
Deep Cove, Doubtful Sound, New Zealand **520-521**
DeFillo, Donald: ***Nine Men's Morris in a Manhattan Cellar.*** Aug. Geographica
Deforestation: ***Malawi: Faces of a Quiet Land.*** By Paul Theroux. Sept., 371-389; Middle America 435, 436, **438-439,** 439, 441, 467-468, Oct. Editor's Page; Landsat image **474-475; *Scientists Identify a New Lemur Species.*** Oct. Geographica
de Gaulle, Charles *see* Gaulle, Charles de
del Coronado, Hotel, San Diego, Calif. **204-205**
DeLoach, Stephen: ***Tiny Step up Mountain, Big Step for Navigation.*** Oct. Geographica
Delta: Colorado River **717-718**
Democratic National Convention (1964): Mississippi delegate 223
Democritus of Abdera 532
Denmark Strait: Passage of the *Bismarck* 628
Dental implant **754**
Dentistry: X rays, real-time imager 101
DePauw University: Minority affairs consultant 213
Deserts: ***Crossing Australia in a Camel Caravan.*** July Geographica; *see also* Baja California
Dhaulagiri (peak), Nepal **393**
Diaghilev, Sergey 168, **170**
Diallo, Diadie **123**

Dialysis graft **755**
Di Carlo, Dominic: ***Bird Control Uses ...What Else...Birds!*** Oct. Geographica
Did Neandertals Speak? New Bone of Contention. Oct. Geographica
Didacus, Saint 183
Dien Bien Phu, Vietnam: French surrender (1954) 589
Diesel engines: Ceramics 766
Dimitrios, Patriarch **348**
Dinesen, Isak 532
Dinh Vinh Tin **621**
Dinosaurs: ***Dating the Kayenta, Sorting Out Evolution.*** Dec. Geographica
Dior, Christian: Leopard-skin coats 152-153
Dip net, traditional **810-811**
Disease Still Killing Mexico's Palm Trees. July Geographica
Do Muoi 575
Dogs: France 60, **60-61;** Vietnam **591,** 593
Dolphins, bottlenose **506**
Dong Anh district, Hanoi, Vietnam 585
Dong Ba Market, Hue, Vietnam 595
Dong Da, Hanoi, Vietnam: District 590; Battle 608
Dong Khoi (street), Ho Chi Minh City, Vietnam 611
Dong Ky, Vietnam: Tet celebration **568-569**
Dormon, Sarah: ***Retracing the First Crusade.*** By Tim Severin. Sept., 326-365
Dorsetshire (cruiser) 632; Final engagement with *Bismarck* 627, 628; Pick-up of *Bismarck* survivors 635, **636,** 637
Dorylaeum (site), Turkey: First Crusade battle 351
Doubilet, David: ***New Zealand's Magic Waters.*** Oct., 507-529
Double Comb (Maya ruler): Tomb artifact **468**
Double-crested cormorant: Beak, deformed: ***Great Lakes Pollution: Still Dangerous.*** Dec. Geographica
Doubtful Sound, South Island, New Zealand 516, **520-521;** Marine life **506, 517, 519**
Douglas fir: Olympic National Forest, Wash. **812**
Douglas-Hamilton, Iain and Oria 267
Drake, Edwin: First oil well 233
Drill bits: Ceramic coating 767
Drip irrigation: San Quintín Valley, Mexico 738, **740-741**
Drug abuse: Ho Chi Minh City, Vietnam 614, 619, addicts **618-619**
Dry-landscape gardens **638-639, 640-641, 646-647, 649,** 657
Dry-plate field camera **544**
Duclos-Lassalle, Gilbert: ***Tour de France—An Annual Madness.*** July, 132-137
Duels: Paris, France 172, **173**
Duke University Primate Center: ***Scientists Identify a New Lemur Species.*** Oct. Geographica
Dunham, Katherine 216, **217**
Duong Quynh Hoa 616-617
Dusky Sound, South Island, New Zealand 516, **516, 522-523**
Duvall, David: ***For a Male Rattlesnake, Life is Full of Troubles.*** Oct. Geographica
Duyen Hai (rural district), Vietnam 620
Dwarf ladybugs **420;** Samurai aphid predator 420-421
Dyckman House, New York, N. Y.: ***Nine Men's Morris in a Manhattan Cellar.*** Aug. Geographica
Dzibilchaltún (site), Mexico 450, **453**
Dzitnup, Mexico: Cenote **444-445**

E

EPA's Wetland Goal: No Net Loss. Aug. Geographica
Eakins, Thomas: Photo by **546-547**
Ear ornaments, jade **484**
Ears: Artificial **754;** Cochlear implant **754**
Earth: Satellite portrait. Dec. President's Page
"Earth '88: Changing Geographic Perspectives" Sept. President's Page
East St. Louis, Ill.: Arts programs for children 216
Eastern Orthodoxy: Ecumenical Patriarch **348**
Eastman Kodak Company: Exhibit funded by 547; Grant for photo exhibit 225
Eating Clay Tablets as an Act of Faith. Dec. Geographica
Eccentric flints **492, 493,** 501
Edelman, Marian Wright **206;** Children's Defense Fund 207
Editor's Page:
  July: ***Liberté, Égalité, Fraternité...Unité!*** July, 2-5
  August: Cuba
  September: Crusades and Shakers
  October: La Ruta Maya
  November: Asia
  December: Holy Land
Education *see* Geography education
Edwards, Mike: ***Washington State, Riding the Pacific Tide.*** Dec., 782-815
Edzna (site), Mexico **455**
The Efe: Archers of the African Rain Forest. By Robert C. Bailey. NGS research grant. Nov., 664-686
  Camps **666-667,** 669, 670, 679, 685; Map locating 669; Moving 685-686
  Children **668, 686;** Infant mortality 679
  Diet 677, 678, 685, 686
  Face painting **684**
  Height 664, 668
  Honey hunting 669, **680,** 681-682, **681,** 685
  Hunting 664, 666, 670, 672, 678-679; Dividing of kills 664, **672, 676, 677,** 679; Preparations for **666-667;** Prey 664, **672, 674-675,** 678, 679; *see also* Honey hunting, *above*
  Huts **666-667,** 670, **670**
  Malnutrition 683; Sign of **682**
  Marriage customs 679, 682
  Rites and rituals **683,** 684, **684-685**
  Seminomadism 665, 667, 669, 685-686
  Social ties with the Lese 666, 669, 684
  Trade with the Lese 666, 669, 670, 678, 679, 685, 686
  Women, role of **665,** 667, **676, 678,** 685, 686
  Xenophobia 668
Egret, reddish **458**
Egypt: Offshore oil rigs **253,** roustabout **252**
Egypt, ancient: ***Oldest Geologic Map, Fit for a Pharaoh.*** Nov. Geographica; Ruins **534-535**
Eiffel Tower, Paris, France 6, **46, 160,** ***July cover;*** Completion 1, 166; Lower section **9-11**
18 Rabbit (Maya ruler) 485, 496, 500; Stone portraits **488-489, 497,** 500
El Bosque, Copán (site), Honduras 495, 497
Elbows: Ceramic prostheses 766; Implant **754-755**
Electric current: Superconductor flow **760**
Electricity: Plastic conductors 773; Plastic insulation 770, 773
Electron shells: Chemical properties determined by 757, 759; Diagrams **758-759**
Elements: Atomic numbers 757-759; Families 757, electron shells determine 757, 759; Symbols 757-759; *see also* Periodic table
Elephants:
  Elephant Talk. By Katharine Payne. Aug., 264-277; ***Aug. cover;*** Aug. President's Page
  Bond groups 274, 276
  Calves **274, cover;** Vocalizations 274, **274**
  Coordinated behavior 267, 270, 271, 272, **272-273,** 275
  Desert habitat 275-277
  Estrus 267, 273; Song 267-268, **268-269**
  Gestation 267
  Infrasound vocalizations: Voiceprints **266-267, 272-273,** alarm **275,** estrous song **268-269,** greeting **276-277,** suckle calls **274**
  Musth 267, **268-269,** 273, 274
  Poaching 276, 277
  Radiotracking 271, 272; Chart **275**
  Sense of smell 273; Sniffing posture **273**
  Forest elephants 678, 686; Butchering of **674-675, 677;** Poaching 677
Eli, Cecilia 799, 803
Ellis, William S.: ***Darcey: A Village That Refuses to Die.*** July, 138-145
El Milagro (ranch), Baja California: Drip irrigation 738
El Mirador (site), Mexico 450, 463
El Morro fortress, Havana, Cuba **281,** 291

El Nazar Church, Göreme valley, Turkey: Byzantine frescoes **330-331**
El Rosario, Baja California, Mexico 725, 728; Climate 729
El Salvador: *Land of the Maya, A Traveler's Map; The Ancient Maya World.* Oct. supplement
Emigration: Vietnam 614, **615,** 618-619
Empire of the Cross (Yucatán) 463-464
Endangered and threatened species: Breeding programs 188, 190; Cryogenic storage of cells 190; Fashion furs' decline 152-153; ***Wild Chimps' Status to Be Ruled Endangered.*** Aug. Geographica; *see also* Baird's tapir; Black howler monkey; California condors; Harpy eagle
Energy conservation: Nepal 396, 397, **400-401,** 404
English Channel: Abbey **69;** First airplane crossing (1909) 99; Tunnel 4, 100, **100,** 101, diagram **100-101,** map locating 101
Ensenada, Baja California, Mexico: Auto race 725, contestants **687, 725**
Entomology *see* Insects
Environmental concerns: ***Annapurna: Sanctuary for the Himalaya.*** By Galen Rowell. Sept., 391-405; ***EPA's Wetland Goal: No Net Loss.*** Aug. Geographica; ***Environmental Promises.*** Nov. President's Page; ***Tidying the "World's Highest Trash Pit."*** Oct. Geographica; ***Tragedy in Alaska Waters.*** By Douglas B. Lee. Aug., 260-263; Washington 783, 785, 798-799; ***A Year in the Life of Planet Earth.*** Dec. President's Page
Environmental Promises. Nov. President's Page
Erosion: Guatemala **439**
Escondido, Calif.; Health spa **196-197**
Espinoza, Anita 725, 728, 740
Espíritu Santo, Isla, Mexico: Fisherman **745**
Esquipulas, Guatemala: ***Eating Clay Tablets as an Act of Faith.*** Dec. Geographica
Essick, Peter, photographer: ***Retracing the First Crusade.*** Sept., 326-365
Esso Australia Ltd.: Oil exploration computer analysis 249, 254
Estates General (France): Summons by Louis XVI 24, 26, 28, compilation of grievances 28, social orders, comparison of populations 28; Third Estate declares itself National Assembly 24, **24-25,** 26, 29
Ethnology: ***Archers of the African Rain Forest.*** By Robert C. Bailey. NGS research grant. Nov., 664-686
Etosha National Park, Namibia: Dry season conditions 269; Elephant communication study 269-270, observation area 269-272, diagram **270-271,** voiceprints **275;** Map locating 265; Waterholes 269
Europe: ***Retracing the First Crusade.*** By Tim Severin. Sept., 326-365; *see also* France; Vatican City; *and Bismarck*
European Community: Removal of borders and economic barriers in 1992 3, 144-145
European Space Agency (ESA): Ariane rocket development 4; Launch site 4, 93; Ownership 93, 96, 97; Rocket designs **93;** Space shuttle **93**
Eurotunnel 4, 100, **100,** 101; Completion date, projected 101; Diagram **100-101**
Everest, Mount, China-Nepal: ***Tidying the "World's Highest Trash Pit."*** Oct. Geographica
Everett, Wash.: Airplane factory **794-795**
Exolite (plastic): Building material **771**
EXPLORER (NGS cable series): ***New-wave Submersibles Race for Design Honors.*** Nov. Geographica; Oil exploration in Alaska's Arctic National Wildlife Refuge. Dec. President's Page; ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821; ***Restoring the Splendor of Angkor Wat.*** July Geographica; ***A Year in the Life of Planet Earth.*** Dec. President's Page
Expo '74 (world's fair): Host 787
Extinct species *see* Atitlán giant pied-billed grebe
Exxon Valdez (oil tanker): Oil spill. Dec. President's Page; ***Tragedy in Alaska Waters.*** By Douglas B. Lee. Aug., 260-263

F

F-14 Tomcats (jet aircraft) **181,** 193-194
Fahey, James E.: ***World War I Memories Live in French Caves.*** July Geographica
Falconry: ***Bird Control Uses...What Else...Birds!*** Oct. Geographica
FAMOUS (French-American Mid-Ocean Undersea Study): ***A New, Long Look at Mid-Atlantic Ridge.*** Dec. Geographica
Farming: Cooperative 141; Dairy 142; Decline in France 140; *see also* Collective farms; Rice farming
Fash, Barbara **481,** 482, 500, 504
Fash, William L., Jr. 497, 498, 499, 500, 504; ***Copán: A Royal Maya Tomb Discovered.*** NGS research grant. Oct., 480-487
Fashion industry 164, 166; ***The Business of Chic.*** By Nina Hyde. July, 147-157
Fauvist art 170-171
Faux, August **340**
Felsenthal, Sandy, photographer: ***Washington State, Riding the Pacific Tide.*** Dec., 782-815
Femoral implants **755-756**
Fer-de-lance (snake) **459**
Ferdinand II, King (Aragon): Proclamation 447
Ferney, France: Voltaire's estate **28**
Ferries: Cabo San Lucas, Mexico **731;** ***Heyday of the Horse Ferry.*** By Donald G. Shomette. Oct., 548-556; Puget Sound, Wash. **789**
Field, Benjamin P., II 366, 368
Field, Benjamin P., IV **367**
Field, Benjamin P., V: ***A Bygone Century Comes to Light.*** By Robert M. Poole. Sept., 366-369
Field, Nancy 366, **367**
Film, first documentary 98
Finback whales: Infrasound vocalizations 267
***Finding the* Bismarck.** By Robert D. Ballard. Nov., 622-637
The Fine Feathered Nest—'La Protection Sociale.' By Cathy Newman. July, 130-131
Fingers: Joint replacements **755,** 773
Fiordland National Park, New Zealand: ***New Zealand's Magic Waters.*** By David Doubilet. Oct., 507-529
Firecrackers: Vietnam **568-569,** 577-578
Fireworks: Paris, France ***July cover***
First Crusade: ***Retracing the First Crusade.*** By Tim Severin. Sept., 326-365; Sept. Editor's Page
Antioch sieges 356-357
Constantinople: Rendezvous point 334, 341, 346, 348; Sacking feared 347, 348
Godfrey of Bouillon **333, 345, 349;** Death 336, 365
Horses 336, 339, 341; Casualties 343, 351, 354; Cavalry 336, 339, 351, 354
Hungary, crossing of 343-344
Jerusalem captured 334, 335, 361, 363, **364,** 365; Kingdom established 365
Map of routes 334-335
Nicaea captured 349-350, 351, 352-353
Peasants' crusade 334, 341, 348-349
Pillaging 341, 347, 357, 363
Slaughter of non-Christians 334, 336, 341, 361, 364
Fish: ***New Zealand's Magic Waters.*** By David Doubilet. Oct., 507-529; ***A Role for the Male in (Fish) Childbirth.*** Sept. Geographica
Fishermen: Baja California, Mexico 738, **742-743, 745;** Istanbul 346-347; Scotland **537**
Fishing, commercial: Baja California, Mexico 739, 741, 742-743, **742-743,** 744; Ho Chi Minh City, Vietnam 608, **609,** 620
Fishing, sport: Baja California, Mexico 722, 739, 742, 743
Fitch, John: Inventions 549, 556
Fitchett, Rick **812**
Fitzgerald, F. Scott: Paris, France 172, 174
Flamingos: Yucatán 448-449, **448-449**
Fleury, Michel **105**
Flight suit, fire-resistant **773**
Florida: ***Cleaning Up the Coastlines.*** Nov. Geographica; ***Florida Law Dictates Respect for the Past.*** Nov. Geographica
Florida, Straits of: Havana harbor 291

Flowerflies, Asian: Egg laying **414,** 416; Eggs **407, 417;** Larvae **414, 415,** attacked by samurai aphids 409, **409**
Flowers, dried **316-317**
Flying buttresses: Cathedral design 114, **115,** 118
Flying fish **512**
Fobes, Natalie, photographer: ***Tragedy in Alaska Waters.*** Aug., 260-263
Fog: Seattle, Wash. **788-789**
Folan, William: Calakmul excavation 450, **460,** 461, 463
Folk song: Vietnamese 602
For a Male Rattlesnake, Life is Full of Troubles. Oct. Geographica
For Whom the Bell Tolls (Hemingway): Manuscript 291
Fortresses: France 20, 102, **103,** 104-105, 107; Havana, Cuba 280, **281,** 291
Fossils: ***Dating the Kayenta, Sorting Out Evolution.*** Dec. Geographica; ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
Foujita **162**
Fouquier-Tinville, Antoine 33, 36
Four-lens wet-plate camera **536**
France:
  Colonialism in Vietnam 561, 570, 589, 600, 601, 602
  France: Bicentennial of the Great Revolution. July, 1-174
  Liberté, Égalité, Fraternité...Unité! By Wilbur E. Garrett. July, 2-5
  The New, the Enduring Paris. Photos by James L. Stanfield. July, 6-17
  Two Revolutions. By Charles McCarry. July, 50-55
  Letters from France. By Don Belt, Cathy Newman, and Cliff Tarpy. July, 56-91
  High Tech: The Future Is Now. By Michael E. Long. July, 92-101
  A Castle Under the Louvre. By Peter Miller. July, 102-107
  The Gothic Revolution. Photos by James L. Stanfield and Victor R. Boswell, Jr. July, 108-119
  Unsettled Immigrants. By Thomas J. Abercrombie. July, 121-129
  The Fine Feathered Nest—'La Protection Sociale.' By Cathy Newman. July, 130-131
  Tour de France—An Annual Madness. By Gilbert Duclos-Lassalle. July, 132-137
  Darcey: A Village That Refuses to Die. By William S. Ellis. July, 138-145
  The Business of Chic. By Nina Hyde. July, 147-157
  ***Paris:* La Belle Époque.** By Eugen Weber. July, 158-174
  France; Historical France—Evolution of a Nation. July supplement
  Vive la différence. July President's Page
  World War I Memories Live in French Caves. July Geographica
Francis I, King (France): Louvre alterations 104
Franke, Bill **574**
Franklin, Benjamin: ***Two Revolutions.*** By Charles McCarry. July, 50-55
Fredericksburg, Va.: Civil War casualties **542-543**
French Air Force: Aerobatic team performance **58-59;** Jet fighter **78-79**
French Guiana: Rocket launch site 4, 93
French Impressionists 170
French Revolution:
  The Great Revolution. By Merle Severy. July, 18-49
  Bastille, fall of 19, 20, 26; Painting **18-19**
  Chronology of events 26
  Counterrevolution and rebellion 30, 37; Map locating 26-27; Vendée (region) 26, 27, 37, 38-39, 42, atrocities 32, 42, 44
  De-Christianizing crusade 36-37, 39, 42; Nationalization of church lands 26, 39; State-employed priests 26, 39
  The Enlightenment, inspiration from 28, 29, 32
  Estates General 28; Convention by Louis XVI 24, 26, 28; Third Estate forms National Assembly 24, 29; *see also* National Assembly *below*
  The Great Fear and agrarian revolt 25, 27, 31; Map 26-27
  Legacy 20, 24, 44-45, 48
  National Assembly 39; Constitutional monarchy 24, 30, 32; Declaration of the Rights of Man and of the Citizen 26, 29, 48; Emergence of Danton, Marat, and Robespierre 30-31, 40; National Convention, call for 40; Tennis Court Oath 24, 26, painting of **24-25**
  National Convention 40, 42, 47; Committee of Public Safety 26, 32, 44; Proclamation of the Republic 26, 32, 40; Purge of moderate Girondists 26, 32; Rule outside of Paris 36
  The Reign of Terror 26, 33, 44, 46; Number of victims 36, 44; Robespierre 32, 33, 36, 44
  Symbols: *Bonnet rouge* 26, **26;** Guillotine **21, 42;** "La Marseillaise" 48, manuscript **49;** Tricolor 26, **26,** 29, **49**
  Utopian ideology and reforms 32, 36, 44; Conscription 26, 42; Cult of the Supreme Being 32; Metric system 26, 32; Republican calendar 26, 32, 39, 40; Slavery, abolishment of 26; Titles, abolishment of 41, 42; *see also* De-Christianizing crusade *above*
  War against foreign powers 26, 27, 31, 36, 40, 42, 44; French victories 26, 27, 32; Map 26-27
Postage stamp commemorating **57**
Two Revolutions. By Charles McCarry. July, 50-55
Fresco technique: Cartoon 697, **705,** pouncing **705;** Pigment-plaster bond 697, 705; Plaster 697, 698, **705,** 708
Frescoes: Byzantine church **330-331;** ***A Renaissance for Michelangelo.*** By David Jeffery. Dec., 688-713
Fresson, Bernard **40**
Frith, Francis: Photo by **534-535**
Frog, casque-headed **458**
Front Beach, Vung Tau, Vietnam 619
Fruit growing: ***Washington State, Riding the Pacific Tide.*** By Mike Edwards. Dec., 782-815
Fuji, Mount: Miniature of **645**
Fulcher of Chartres 348, 351
Full-plate daguerreotype camera **532**
Funerary pot, Maya **460**
Fur trade: Middle America 442, 456, jaguar skin **442**
Furniture, Shaker: Candlestand 321; Chairs **306-307,** 309, 319, **320,** auction prices 321
Futuroscope, near Poitiers, France **64-65**

G

GTV (video-computer program) 821
gadulka (musical instrument) **344**
Galasso, George: ***Wild Chimps' Status to Be Ruled Endangered.*** Aug. Geographica
Gall, tree: Aphid colony 406, 410, 412, **412-413**
Gallagher, Peadar: ***"Time Capsule" Floats from the Pole to Ireland.*** Aug. Geographica
Gallup poll: ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821
Gambiez, Fernand **89**
Games: ***Nine Men's Morris in a Manhattan Cellar.*** Aug. Geographica
Ganzouai, Farid and Anissa **126-127**
Gardens: ***In a Japanese Garden.*** By Bruce A. Coats. Nov., 638-663
Garrett, Kenneth, photographer: ***Copán: A Royal Maya Tomb Discovered.*** NGS research grant. Oct., 480-487; ***Copán: City of Kings and Commoners.*** Oct., 488-505; ***La Ruta Maya.*** Oct., 424-479; On Assignment, covering La Ruta Maya. Oct.
Garrett, Wilbur E. **5;** ***La Ruta Maya.*** Oct., 424-479; ***Liberté, Égalité, Fraternité...Unité!*** July, 2-5; On Assignment, covering La Ruta Maya. Oct.; On Assignment, in France. July
Garver, John: ***No Square Corners on a Round World.*** Sept. Geographica
Gas turbines: Auto engines 767, 768, 769, ceramic rotors 767, **768,** diagrams **769**
Gaulle, Charles de: Science policies 95-96, 97
Gelidonya, Cape, Turkey: ***Nostalgic Dives Yield New Shipwreck Finds.*** July Geographica
Geller, W. O.: Engraving by **54-55**
Geneste, Eric **83**

Geography Awareness Week: ***Environmental Promises.*** Nov. President's Page; ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821
Geography education: ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821; ***A Ride for Wildlife.*** Oct. President's Page
Geology: ***Oldest Geologic Map, Fit for a Pharaoh.*** Nov. Geographica; ***The Quest for Oil.*** By Fred Hapgood. Aug., 226-259
Geomancy: Japan 648
Geophagy: ***Eating Clay Tablets as an Act of Faith.*** Dec. Geographica
Geophones: Seismic oil prospecting 233, 245, 249, **254**
George, Pierre. Oct. President's Page
Georgia, U.S.S.: Crewman **796**
Germany, West: Aid to Malawi 382; Crusade journey reenactment 343
Gershwin, George 225
Ghandruk, Nepal 396, **396, 399,** 400, 404; Water heating systems **400-401**
Gia Long, Emperor (Vietnam) 596
Giant ladybugs: Larva **421;** Mating **420;** Samurai aphid predator **420-421,** 421
Gibson, Althea 220, **220-221**
Gilje, Paul: ***Personalized Maps for the Masses.*** Dec. Geographica
Girl Scouts of America: First black president (1975) 211, **211**
Glass fibers 774, 778
Glenner, George 203; Clinic directed by **202**
Global Positioning System (GPS): ***Tiny Step up Mountain, Big Step for Navigation.*** Oct. Geographica
Global warming. Oct. Editor's Page
Glover Reef, Belize **432-433**
Glue pox: Sistine Chapel 697, 710
Glyphs, Maya 434, **454, 481, 498, 504,** epigraphy research 492, frieze **503,** name glyphs **496, 497,** 499, 504, *see also* Hieroglyphic Stairway
Goatherds: Sierra San Francisco, Baja California Sur, Mexico 733, **735**
God N: Maya Stone head **505**
Godfrey of Bouillon: ***Retracing the First Crusade.*** By Tim Severin. Sept., 326-365; Sept. Editor's Page
Goggles, flash-blocking **750**
Golden-crowned sifaka: ***Scientists Identify a New Lemur Species.*** Oct. Geographica
Golden Door spa, Escondido, Calif. **196-197**
Golden Spike (NGS computer courseware) 821
Gone With the Wind (film): Vietnamese reaction to 593
Good Friday celebration: Guatemala **425-426**
Goodall, Jane: ***Wild Chimps' Status to Be Ruled Endangered.*** Aug. Geographica; Sept. President's Page
Gordon, Felicia, and mother **219**
Gore-Tex: Prostheses made from **755-756**
Göreme valley, Turkey: Byzantine church frescoes **330-331**
Gosse, Eric 510, 516
The Gothic Revolution. Photos by James L. Stanfield and Victor R. Boswell, Jr. July, 108-119
Grace, Roger 510, **512-513,** 516, 526, **526**
Grande Arche de la Défense, Paris, France **8, 65;** Bicentennial symbol 6
Great Lakes Pollution: Still Dangerous. Dec. Geographica
Great Plaza, Copán (site), Honduras **494,** 500
The Great Revolution. By Merle Severy. July, 18-49
Great Rift Valley, Africa-Asia 380
Great Victoria Desert, Australia: ***Crossing Australia in a Camel Caravan.*** July Geographica
Grebenau, Marcel **337**
Green turtle hatchling **443**
Greene, Erick: ***It's a Twig, a Catkin...No! It's a Caterpillar!*** Oct. Geographica
Greensboro, N. C.: Bennett College 211
Grenoble, France: Protest **32**
Grimoin-Samson, Raoul 161, 162
Grosvenor, Gilbert M.: ***Our Year in Review: Superpowers Not So Super in Geography.*** Dec., 816-821
Groveland, N. Y.: Closure of Shaker community 316
Grube, Nikolai 500, 502
Guan, horned **457**
Guanaja Island, Honduras: Columbus's landing 438, 440
Guatemala: ***Eating Clay Tablets as an Act of Faith.*** Dec. Geographica; *Land of the Maya, A Traveler's Map; The Ancient Maya World.* Oct. supplement; ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479
Guatemala City, Guatemala: Maya *cofradías* convention **470,** 471, **471**
Guenzel, Udo 93, 94
Guerra, Ramón **480, 486**
Guerrero, Gonzalo 445
Gueten, Khetra **128**
Guillemot, pigeon: Oil spill victim **262**
Guillotin, Joseph-Ignace 20
Guillotine **21,** 26, 36, **42;** Last executioner in France **45**
Gwalchmai, Robert: Scale model of Burlington teamboat 555.
Gypsies, with dancing bear **344**

H

HD 114762 (star): ***Is That a Planet Circling HD 114762?*** July Geographica
Haack, Robert A.: ***When the Trees Cry, Do the Beetles Hear?*** Dec. Geographica
Hadd, Arnold **314,** 325
hagi (bush clover) 648
Haiku, on maple leaves 651
Haiphong, Vietnam: Port city for Hanoi 582
Halbouty, Michel T. 255-256
Hale, Clara McBride 218, **218**
Hall, H. Tom: Paintings by **491, 497, 501**
Halong Bay, Vietnam **592-593**
Halting the Importation of Bolivian Textiles. Sept. Geographica
Hamlet (character): Portrayed by Sarah Bernhardt (1899) **167**
Hancock Shaker Village, Pittsfield, Mass. 316, 318, 319; Round barn **312**
Hanford Site, Richland, Wash.: Scientific research 803
Hanoi, Vietnam: ***Hanoi: The Capital Today.*** By Peter T. White. Nov., 561-593
Bicycles **558-560,** 561; Factories 572, **584-585**
French colonial period 561, 570, 589
Hospitals **574,** 586
Lakes 561, 572, 577
Maps 570-571
Mayor 582, **585**
Population 561, 570
Temples 572, **573,** 575, 593
Tourism 582, 592
Vietnam War: Air-raid shelters 578, 582; Prisons 578, **579,** 582
Hanson, Guy **783**
Hapgood, Fred: ***The Quest for Oil.*** Aug., 226-259
Harlow, Merle and David **784**
Harper, Frances Ellen Watkins: Poem 208
Harpy eagle 473
Harrier II (jet aircraft) 774
Harrison, Benjamin: Medal depicting **369**
Harrison, Mike: ***Bird Control Uses ...What Else...Birds!*** Oct. Geographica
Harvey, David Alan, photographer: ***Hanoi: The Capital Today.*** Nov., 561-593; ***Hue: My City, Myself.*** Nov., 595-603; ***Saigon: Fourteen Years After.*** Nov., 604-621; On Assignment, in Vietnam. Nov.
haute couture 150-151
Havana, Cuba: ***The Many Lives of Old Havana.*** By Joseph Judge. Aug., 278-300; Aug. Editor's Page
Hawaii: Airline accident (1988) **748-749,** 749
Hawarden, Clementina: Photo by **541**
Hawes, Josiah Johnson: Daguerreotype by **536**
Hayashi, Katsuyuki 400, 404
Heart, artificial **754**
Heart pacemakers **754**
Heavy horses 333, 336, 339, 343; Descendants *see* Ardennes (horse breed)
Heinicke, Don 805, 806
Helicopters: Oil exploration 241, 242, **246, 247,** 248
Heliostat, plastic **751**
Helium 757; Electron shell 759; Superconductor use 760
Helmets: French, 14th-century bronze 105, **105**
Hemingway, Ernest 172, **173,** 174; In Cuba 291, 296
Henderson Intermediate School, Starkville, Miss.: Kids Network 821

Henry, Tom and Sandy **184**
Henry, Will 319, 321
Herculaneum (ancient city), Italy: ***Herculaneum's Dead Still Tell Tales.*** Oct. Geographica
Hereford Cathedral, England: ***A Treasure of a Map Barely Evades Auction.*** Aug. Geographica
Hermes (planned space shuttle): Diagram **93**
Hernández, Hilda **297**
Heuschele, Werner 188, 190
Heyday of the Horse Ferry. By Donald G. Shomette. Oct., 548-556
Hieroglyphic Stairway, Copán (site), Honduras **494, 499,** 500; Cache found 500-501; Restoration 482, 500, 504
Hieroglyphics, Maya *see* Glyphs
High Tech: The Future Is Now. By Michael E. Long. July, 92-101
Highways: Baja California (peninsula), Mexico 724-725
Hill, David Octavius: Photo by **537**
Hill, Scott Chapman: Burlington steamboat survey 550, 551, 553
Hillary, Sir Edmund: ***Rebuilding a Monastery on the World's Roof.*** Sept. Geographica
Himalaya, Asia: ***Annapurna: Sanctuary for the Himalaya.*** By Galen Rowell. Sept., 391-405; ***Tidying the "World's Highest Trash Pit."*** Oct. Geographica
Himalayan Trust/Thyangboche Monastery account: ***Rebuilding a Monastery on the World's Roof.*** Sept. Geographica
Hip replacements 752, 754, **755,** 766; X ray of **752**
History, European: *France; Historical France—Evolution of a Nation.* July supplement; ***The Gothic Revolution.*** Photos by James L. Stanfield and Victor R. Boswell, Jr. July, 108-119; ***The Great Revolution.*** By Merle Severy. July, 18-49; ***Paris:*** **La Belle Époque.** By Eugen Weber. July, 158-174; ***Retracing the First Crusade.*** By Tim Severin. Sept., 326-365
History, U. S.: ***A Bygone Century Comes to Light.*** By Robert M. Poole. Sept., 366-369; ***Two Revolutions.*** By Charles McCarry. July, 50-55; U.S.S. *Constitution* incident 600; *see also* Vietnam War
Hitachi television factory, Tijuana, Mexico 203-205
Ho Chi Minh 589-590, 597; Death 574, 589, deathbed **575;** Education 598, 603; Former name 598; Land reforms 592; Personal secretary 574, **575,** 589-590
Ho Chi Minh City, Vietnam: ***Saigon: Fourteen Years After.*** By Peter T. White. Nov., 604-621
Airport 616
Chinese population 614, 619
Drug abuse 614, **618-619,** 619
Horse racing 620; Jockey **621**
Maps 610-611
Motorbikes **604-605,** 606, 614
Population 607, 611
Prostitution 614
Rice trade 612
Seafood industry 608, **609,** 620
Tourism 617, 619
Ho Chi Minh Trail, Vietnam 589
Hoarusib Valley, Namibia: Elephants 276
Holmes, Oliver Wendell 172, 532
Holtzberg, Matty **768**
Holy Land: *Holy Land,* Special Places of the World map series. Dec. supplement; Dec. Editor's Page; ***Vial of Anointing Oil Found in Israeli Cave.*** Oct. Geographica; *see also* Crusades
Holy relics: Lance 357
Holy Sepulchre, Church of the, Jerusalem **365;** Fire (1808) 365; Godfrey of Bouillon burial place 336, 365; Tomb of Christ 336, 365
Homeless child: San Diego **201**
Hominids: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
Honduran Institute of Anthropology and History: Copán excavation 492, 504
Honduras 438, 440, **455; *Copán: A Royal Maya Tomb Discovered.*** By Ricardo Agurcia Fasquelle and William L. Fash, Jr. NGS research grant. Oct., 480-487; ***Copán: City of Kings and Commoners.*** By George E. Stuart. Oct., 488-505; Deforestation **438-439;** *Land of the Maya, A Traveler's Map; The Ancient Maya World.* Oct. supplement
Honegger, Arthur **170**
Honeyhunters: ***The Efe: Archers of the African Rain Forest.*** By Robert C. Bailey. NGS research grant. Nov., 664-686
Honeydew: Aphids 416, **417**
Hood, H.M.S. (battle cruiser): Pursuit of *Bismarck* 628, 629; Sinking 628, 637
Hopper, Edward 536
Hormiguero (site), Mexico **455**
Horse ferries: ***Heyday of the Horse Ferry.*** By Donald G. Shomette. Oct., 548-556
Horse racing: Guatemala **476-477;** Ho Chi Minh City, Vietnam **620-621;** Oklahoma City, Okla. **750-751;** Omak, Wash. **800-801**
Horseback journeys: ***Retracing the First Crusade.*** By Tim Severin. Sept., 326-365
Horsemen: Hungary **328-329, 338-339**
Horses: Ardennes **332,** 336, 339, **340,** 341; Endangered species *see* Przewalski's horses; Hungarian roundup **338-339;** Maya deity 469
Hortobágy National Park, Hungary: Horsemen **338-339**
Horton Plaza, San Diego, Calif. **186,** 196
Hosokawa Tadatoshi: Garden designed by **645**
Hot spring: Takaragawa, Japan **642-643,** *koi* **662**
Hot tub, floating **797**
Housing material, plastic: Prototype 773
Houston, Tex.: Astrodome 256, 258-259; Zoo **772**
Howler monkeys: Black **434,** 435; Golden-mantled 441; Maya depiction **435**
Hudson, Ethel 316, **324**
Hue, Vietnam: ***Hue: My City, Myself.*** By Tran Van Dinh. Nov., 595-603
Citadel 595, 597; Noon Gate **597**
Cultural and intellectual tradition 596, 597, 598
Founding legend 595-596
Imperial capital 595, 596, 597
Map 597
Population 597; In 1937 596
Unexploded mines in region 600
Hughes, Langston: Poem 209
Hugo, Victor **164;** Lying in state **165**
Huli tribesman **247**
Hulings, Martha 309, 313
Human body: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
Human rights declaration: France (1789) 26, 29, 48
Human sacrifice: Maya 445, 446, 469, 485
Hungary: Crusade journey reenactment 344-345; Crusader knights' journey 343-344; Horsemen **328-329, 338-339**
Hunter-gatherers: ***The Efe: Archers of the African Rain Forest.*** By Robert C. Bailey. NGS research grant. Nov., 664-686
Hunters: Darcey, France **141**
Hunting dogs: Château de Cheverny, France **60-61**
Hurricanes: Gilbert (1988) 445, 448; Hattie (1961) 464
Hybritech, San Diego, Calif. 188
Hyde, Nina: ***The Business of Chic.*** July, 147-157; On Assignment, in France, July
Hydrocephalus shunt **754**
Hydroelectric power: Malawi 387
Hydrogen 757; Electron shell 759
Hydrophone cables: Offshore seismic survey **236-237,** 239
Hyoid bone, human: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
Hypersonic jets: Composite materials use 777, 778; Model, half-size **779**

I

"I Dream A World": America's Black Women. By Brian Lanker. Aug., 209-225
Ibigawa, Japan: Rock center **655**
ICCROM 705
Ice Age man: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
Ichcansiho (Mérida), Mexico: Maya surrender 463
Iguana, in Maya mythology **468**
Île de la Cité, Paris, France **15-17, 46-47, 118-119**

Imai Toshimitsu: Garden designed by **640-641**
Immigration: France: ***Unsettled Immigrants.*** By Thomas J. Abercrombie. July, 121-129
Immigration: United States: ***San Diego—Where Two Californias Meet.*** By Neil Morgan. Aug., 176-205
Imperial Beach, San Diego, Calif.: Pollution from Mexico 193
In a Japanese Garden. By Bruce A. Coats. Nov., 638-663
Inamori, Kazuo 764, 766, **768**
Inchworms: ***It's a Twig, a Catkin...No! It's a Caterpillar!*** Oct. Geographica
Independence, U.S.S. 193
India: ***The Outlook Brightens for India's Monkeys.*** Nov. Geographica
Indiana: Shaker communities 309, map locating 310
Indians of Central America *see* Maya
Indians of North America: Baja California (peninsula), Mexico **726-727,** 729, disease decimated 724, 726, 739; ***Florida Law Dictates Respect for the Past.*** Nov. Geographica; Washington 798-799, **800-801,** 803, **810;** ***A Zuni National Park: 1,600 Years of History.*** Sept. Geographica
Indonesia: Oil exploration **228-232,** 245, 247, 248-249
Infant mortality: Malawi 376, 381, 383; South Africa 381; Zimbabwe 381
Infrared spectrometry: Sistine Chapel fresco analysis 698, **699**
Infrasound: ***Elephant Talk.*** By Katharine Payne. NGS research grant. Aug., 264-277
Ingham, Linda **512-513,** 516, **517,** 526, **526**
Inner ear: Cochlear implant **754**
Insects: ***It's a Twig, a Catkin...No! It's a Caterpillar!*** Oct. Geographica; ***Samurai Aphids: Survival Under Siege.*** By Mark W. Moffett. Sept., 406-422; ***When the Trees Cry, Do the Beetles Hear?*** Dec. Geographica
Institut de France **89;** ***A Ride for Wildlife.*** Oct. President's Page
Institute for the Military Blind, Hanoi, Vietnam: Veterans **574**
Instructional Leadership Institute 821
Integrated expert systems: Oil exploration 256, 258
Interleukin-2 812
Intermetallics 778, 780
Intraocular lenses **754**
Ion beams: Material hardening 752, **781**
Ionic bonding 759, 763
Ireland: Potato famine relief 314
Irises, Japanese **656**
Iron 758; Rapid solidification alloy 780
Irrigation: Baja California (peninsula), Mexico **722-723,** 733, 738, drip irrigation 738, **740-741;** California citrus groves **198-199**
Is That a Planet Circling HD 114762? July Geographica
Ise-Shima National Park, Japan: Shinto shrine **660**
Islam: France 121, 124, 127, 129, Koran studies class **120,** prayers **124, 125,** 128, weddings 124, **128;** *Holy Land,* Special Places of the World map series. Dec. supplement; *see also* Crusades; Mosques
Israel: Drip irrigation development 738; *Holy Land,* Special Places of the World map series. Dec. supplement; *see also* Kebara cave
Israelites: ***Vial of Anointing Oil Found in Israeli Cave.*** Oct. Geographica
Istanbul, Turkey: Eastern Orthodox Church **348;** Fisherman **346-347;** *see also* Constantinople
Isuzu: Auto engine, ceramic 766, 769, car using 766, **769**
Italy: Geography test results 816, 817; *also* Herculaneum; Vatican City
It's a Twig, a Catkin...No! It's a Caterpillar! Oct. Geographica
Ituri Forest, Zaire: ***The Efe: Archers of the African Rain Forest.*** By Robert C. Bailey. NGS research grant. Nov., 664-686
Itzá Maya: Last ruler 468, 469
Ivory poaching 675, 677
Ixtepeque (site), Guatemala: Obsidian quarry 499
Izamal, Mexico **446-447,** 447
Izanagi (god): Shrine **660**
Izanami (god): Shrine **660**
Iznik, Turkey **350-351, 352-353** *see also* Nicaea

J

Jabiru storks 465
Jack-up rigs: Sabine River, Tex.-La. **252;** Suez, Gulf of **253**
Jackson, Rebecca 310, 314, 316
Jade: Maya: Artifacts **461, 484, 485,** 498, 500-501; Trade 498
Jaguars **772;** Maya sacrifice **497,** 501; Skin **442**
Jaguarundi **459**
Jane Goodall Institute: ***Wild Chimps' Status to Be Ruled Endangered.*** Aug. Geographica
Japan: Ceramics research 763, 764, 766, 768; Fruit import requirements 785; ***In a Japanese Garden.*** By Bruce A. Coats. Nov., 638-663; Occupation of Vietnam (World War II) 600; ***Samurai Aphids: Survival Under Siege.*** By Mark W. Moffett. Sept., 406-422; Superconductors, high-temperature 763; Trains, magnetically levitated **748;** Nov. Editor's Page
Japanese: Washington 807
Jason Museum Network: Geography education support 819
Jason project: ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821
Jawbones: Mandibular mesh **754**
Jawfish, yellowhead: ***A Role for the Male in (Fish) Childbirth.*** Sept. Geographica
Jazzercize: Patrons **190-191**
Jefferson, Thomas **52;** Envoy to France 51, 52, 53, 54
Jeffery, David: ***A Renaissance for Michelangelo.*** Dec., 688-713; On Assignment, in the Sistine Chapel. Dec.
Jehovah's Witnesses: Malawi 377
Jemappes, Battle of (1792), Belgium: French victory 27
Jerusalem: First Crusade: Capture 334, 335, 361, 363, 364, **364,** 365, kingdom established 335, 365, slaughter of non-Christians 334, 361, 364; Dec. Editor's Page; *Holy Land,* Special Places of the World map series. Dec. supplement
Jessye, Eva **224,** 225
Jesus: Crucifixion lance 357; Tomb 336, 365
Jet aircraft: Airbus A320 93, 94-95, diagrams **92-93;** F-14 Tomcats **181,** 193-194; French **58-59, 78-79**
Jet engines: Boeing factory **794;** Composite materials 777
Jet lag: ***Lighting the Way to a Jet-lag Solution.*** Dec. Geographica
Jewel anemone **515**
Jews: First Crusade slaughter of 334, 336, 341; German cemetery **337**
Jogger with artificial legs 746, **747**
John Dory fish 512, **513**
John Paul II, Pope: Invitation to visit Cuba 299
Johnson, James Weldon: Correspondence with Gwendolyn Brooks 223
Jonangu shrine, Kyoto, Japan: Palm trees, winter protected **658**
Jones, Kristi Elliott **790**
Jones, Vendyl: ***Vial of Anointing Oil Found in Israeli Cave.*** Oct. Geographica
Jordan, Barbara **210;** Public service 210
Jordan: Crusade journey reenactment 360; *Holy Land,* Special Places of the World map series. Dec. supplement; Palestinian refugees **360**
Josselin, France: Château **80;** Mayor **80, 81**
Jousting, Turkish **354-355**
Jovanovich, William 188
Judaism: *Holy Land,* Special Places of the World map series. Dec. supplement; ***Vial of Anointing Oil Found in Israeli Cave.*** Oct. Geographica
Judge, Joseph: ***The Many Lives of Old Havana.*** Aug., 278-300
Jug hustlers: Alaska **254;** Oman **244-245**
Julius II, Pope: Chapel *see* Sistine Chapel; Michelangelo commission 696, 697, 703, 708, heraldic motif **710, 711**

K

Kabáh (site), Mexico **454**
Kacheche, Marton, and family **372-373**
Kadzola, Ben 380-381
Kaga clan: Gardens created by 661
Kagami Shiko: Poem by 643

Kali Gandaki (valley), Nepal **392-393,** 398
kami (spirits) 644, 647
Kamikaze headband **807**
Kampuchea: ***Restoring the Splendor of Angkor Wat.*** July Geographica
Kamuzu Academy, Mtunthama, Malawi 371, 374, 387-388; Students **370-371, 388**
Kamuzu Dam, Malawi **387**
Kanazawa, Japan: Gardens **658-659,** 661, **663**
karesansui 657
Kasmauski, Karen, photographer: ***San Diego—Where Two Californias Meet.*** Aug., 176-205
Kasungu National Park, Malawi 387
Katsura Rikyu, Japan 661
Katz, Andrea: ***Scientists Identify a New Lemur Species.*** Oct. Geographica
Kayenta formation, Ariz.: ***Dating the Kayenta, Sorting Out Evolution.*** Dec. Geographica
Kayseri, Turkey: Circumcision ritual preparation **355**
Kebara cave, Israel: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
Kelly, J. Michael: ***A Role for the Male in (Fish) Childbirth.*** Sept. Geographica
Kelly, Leontine T. C. 222, **222**
Kelly, Patrick 155-156; Portrait **155**
Kenrokuen garden, Kanazawa, Japan 661; "river washers" **663;** Trees, winter-protection **658-659**
Kentucky: Elementary school requirements 821; Shaker communities 309, map locating 310
Kenya: Elephant vocalization research 268, voiceprints **268-269, 272-277;** Map 265
Kevlar: Bulletproof vests 772; Components 770; Composite materials 774; Flight suit **773;** Molecular chains 770, **770**
Key West, Fla.: Hemingway's fishing expeditions 291
Khai Dinh, Emperor (Vietnam): Tomb **596-597, 599**
Khirbat Qumran, West Bank: ***Vial of Anointing Oil Found in Israeli Cave.*** Oct. Geographica
Khmer Empire: ***Restoring the Splendor of Angkor Wat.*** July Geographica
Kilimanjaro, Mount, Tanzania **264-265**
Killer whales: Sea World **176-177**
Kinemax, Futuroscope complex, France **64-65**
King George V (battleship): Final engagement with *Bismarck* 627, 628
King Mahendra Trust for Nature Conservation 400, 404; Chairman 398; Director 396
Kingston, Dave 234, 236, 254
Kinkajou **458**
Kiskadee, great **488**
Kisling, Moïse **162,** 174
Kites: Maya tradition 471, **473**
Kivas, Village of the Great (site), N. Mex.: ***A Zuni National Park: 1,600 Years of History.*** Sept. Geographica
Klickitat River gorge, Wash.: Subsistence fishing **810-811**
Klika, Peter: ***Muli: In the Footsteps of Joseph F. Rock.*** Dec. Geographica
Knee replacements 754, 766
Knives, ceramic 764, **766;** Cutting edge **766**
Knorozov, Yuri 492
Kobori Enshu 661
Kodak camera, first **530,** 546
Kodiak Island, Alas.: Oil spill pollution 263
Kohunlich (site), Mexico **452**
koi **662**
Korakuen garden, Okayama, Japan **654, 656**
Korakuen garden, Tokyo, Japan 661
Korean Air Lines: Airplane **795**
Kourou, French Guiana: Rocket launch site 93
Kristof, Emory: Burlington teamboat wreck 551
Kroc, Joan 196, 200
Kronauer, Richard: ***Lighting the Way to a Jet-lag Solution.*** Dec. Geographica
Kumamoto, Japan: Mount Fuji miniature **645**
Kurosu, Utako **406,** 409, 412, **413**
Kursk, U.S.S.R.: Geographic knowledge survey 818; Participant **817**
Kyoto, Japan: Castle 661; Design 648; Palace 648; Temples *see* Saihoji; Tofukuji

L

La Belle Époque. By Eugen Weber. July, 158-174
Labná (site), Mexico **452**
La Coupole (café), Paris, France **162**
Lac Son (café-bookstore), Hue, Vietnam 596, 598
Lace: "photogenic drawing" **532;** Shaker design **325**
Lacewing, brown: Larvae **422,** samurai aphid predators 422
Lacombe, Jean-Paul **77;** Sweetbread dish created by **75**
Lacroix, Christian: Designs 151; Model **150-151**
Ladouceur, Mike and Jessie **813**
Ladybugs: Larvae **421,** cannibalistic 421; Mating **420;** Samurai aphid predators 420-421, **420-421**
Lafayette, Marquis de 29, **30,** 31, 36, **51;** Family estate **31;** ***Two Revolutions.*** By Charles McCarry. July, 50-55
Lafayette Escadrille 78; Jet fighter **78-79**
Lagerfeld, Karl 150, 154, **154,** 156; Design by **157**
Laing, Bob 245, 247, 249, 254
Lake Villa, Ill.: ***A Ride for Wildlife.*** Oct. President's Page
"La Marseillaise" (French national anthem) 48; Manuscript **49;** Origin 48, 129
La Mina, Havana, Cuba **294**
Laming, Denis 64; Buildings designed by **64-65**
Land mines, unexploded: Vietnam 600
Landa, Diego de 446, 447-448
Landfills: Plastics disposal problem 751, 772
Landsat images: Mexico-Guatemala border region **474-475**
Landscape architecture: ***In a Japanese Garden.*** By Bruce A. Coats. Nov., 638-663
Lanesboro, Minn.: Church: ***Personalized Maps for the Masses.*** Dec. Geographica
Langbauer, Bill 266, 268-269, 271
Langdon, Barnabas and Jonathan: Teamboat patent (1819) 550-551
Lanker, Brian: ***"I Dream A World": America's Black Women.*** Aug., 209-225; On Assignment. Aug.
La Paz, Baja California Sur, Mexico 721, 722, 731; Aerial view **730**
La Push, Wash.: Sunset **814-815**
Laroque, Pierre 130, 131
La Ruta Maya. By Wilbur E. Garrett. Oct., 424-479; Oct. Editor's Page
Laser shows: San Diego **187**
Lasers: Advanced materials revolution 752
Las Sepulturas, Copán (site), Honduras 495, 497, 498, 501-502
Lauritzen, Dag-Otto **136**
Lava tube caves: New Zealand 510, **510-511**
Law firm, world's largest 205
Leal Spengler, Eusebio 280, **281,** 291
Lebanon: *Holy Land.* Special Places of the World map series. Dec. supplement
Lee, Ann 304, 309, 313, 319; Grave 309
Lee, Douglas B.: ***Tragedy in Alaska Waters.*** Aug., 260-263
Left Bank, Paris, France 161, 164; Bookshop **173**
Legs, artificial 746, **747, 755-756**
Le Louis IX (restaurant), Paris, France **61**
Le Mans, France: Cathedral **115**
Lemurs: ***Scientists Identify a New Lemur Species.*** Oct. Geographica
Leopard-skin coats: Fashion industry use decline 152-153
Leopards: Attacks on humans 404
Leprosy: Malawi 380, 381
Lerner, Richard 185, 188
Les Arènes de Picasso, Paris, France **64**
Les Bains (club), Paris, France **62-63**
Les Charmettes, Chambéry, France **29**
Lese (people): ***The Efe: Archers of the African Rain Forest.*** By Robert C. Bailey. NGS research grant. Nov., 664-686
Diet 670, 678, 679
Diseases 679
Gardens 668, 669, **678,** 679, 686
Infant mortality 679
Language 669
Malnutrition 683; Sign of 683
Marriage customs 679
Prejudice toward the Efe 679
Rites and rituals **683,** 684, **684-685**

Slash-and-burn agriculture 666, 668
Social ties with the Efe 666, 669, 684
Trade with the Efe 666, 669, 670, 678, 679, 685, 686
Villages 668, **678,** 679, huts 668; Map locating 669
Xenophobia 668
Lethal yellowing: ***Disease Still Killing Mexico's Palm Trees.*** July Geographica
Letters from France. By Don Belt, Cathy Newman, and Cliff Tarpy. July, 56-91
Lexan (plastic) 770, 772, **772**
Liberté, Égalité, Fraternité...Unité! By Wilbur E. Garrett. July, 2-5
Liberty ships: Defective steel 752, 760
Library of Congress, Washington, D. C.: Poetry consultant 223
Library of oil well cores **241**
Liddell, Alice **540**
Lifupa Game Camp, Kasungu National Park, Malawi 387
Ligaments, artificial **755-756**
Ligen, Pierre-Yves **104,** 107
Lighthouse, Maya 444-445, **453-454**
Lighting the Way to a Jet-lag Solution. Dec. Geographica
Lignin: Trees 773, 774
Lilac Bloomsday Run: Spokane, Wash. **802**
Lilongwe, Malawi 372; Hospital 380; Water supply 387
Limbe, Malawi 376, 380, 388
Lincoln, Abraham: Photos of 544
Lindsay, Bertha **315,** 316, 323-324
Linh Quang Pagoda, Hue, Vietnam: Cook **603**
Literature: ***Paris:*** **La Belle Époque.** By Eugen Weber. July, 158-174
Lithium 757; Aluminum alloys 779; Dangers 757, 779
Lithographic stone: First photograph on 541
Livingston, Guatemala 440, 441
Ljubostinja monastery, Yugoslavia: Monk **342**
Lobsters: Industry 440, **440,** 441-442; Rock lobster **518,** 519
Loire (river), France: Mass executions by drowning (1793) 32, 44
Long, Michael E.: ***High Tech: The Future Is Now.*** July, 92-101; ***Lighting the Way to a Jet-lag Solution.*** Dec. Geographica; On Assignment, in France. July
Loom, Maya **464**
Looting: Maya sites 450, 465-466, trench **452**
Los Angeles, Calif.: Artificial harbor 183
"Los Cabos" (resort), Baja California Sur, Mexico 722
Lottery: Ho Chi Minh City, Vietnam 614
Louis XIV, King (France): Fashion decrees 154, 156; Versailles, Palace of 29, 34
Louis XVI, King (France): Audience with Benjamin Franklin 53, **54-55;** Farewell to family **43;** ***The Great Revolution.*** By Merle Severy. July, 18-49
The Louvre, Paris, France **12-14;** ***A Castle Under the Louvre.*** By Peter Miller. July, 102-107; Courtyard **12-14;** Fashion museum 156; Fashion shows 155; Glass-pyramid entrance **1, 13-14,** 107, interior **106, 107**
Lucasfilm Ltd.: Collaborative project with NGS 821
Luck Ngi Music Hall, Seattle, Wash.: Operatic jam session 807
Luddington, Mark **784**
Lumber industry: ***Washington State, Riding the Pacific Tide.*** By Mike Edwards. Dec., 782-815
Lumière, Auguste and Louis 98
Lunar New Year celebrations: Vietnam *see* Tet
Luz Street, Havana, Cuba: Houses **290, 292, 293**
Lyon, France **68;** Counterrevolution 27, 37, repression 36

M

McCain, John S., III 578
McCarry, Charles: ***Two Revolutions.*** July, 50-55
McConnell, Bob: ***Tidying the "World's Highest Trash Pit."*** Oct. Geographica
McCoy, Randolph E.: ***Disease Still Killing Mexico's Palm Trees.*** July Geographica
McCurry, Steve, photographer: ***Unsettled Immigrants.*** July, 121-129
Machapuchare (peak), Nepal **390-391, 395,** 404
MacKay, Scott **237**
McKee, Richard **772**
Madagascar: ***Scientists Identify a New Lemur Species.*** Oct. Geographica
Maes, Victor 792, **792, 793**
Magnesium 758; Rapid solidification process 780
Magnetism: Trains, levitating **748,** high-temperature superconductor application 761
Magnetometers: SQUID **762,** image from **763**
Magnets: Superconductors levitate 760, **761**
Mah K'ina Yax K'uk' Mo' (Maya ruler) 496; Stela **498,** 504; Stone portrait **496**
Maine, U.S.S. 280, 287
Malawi: Faces of a Quiet Land. By Paul Theroux. Sept., 371-389
Birthrate 381
Capital *see* Lilongwe
Censorship 377
Climate 376, 389
Crops 376, 377, 382, **384,** 386; Map locating 377
Deforestation 377, 386, causes 386; Erosion 386; Tree conservation 386
Diet 372, 376, 381, **384,** 386
Diseases 376, 381, 383; AIDS 378, 380; Leprosy, near elimination of 380, 381
Economy 376, 380, 381, 389
Energy sources 386-387, 387
Exports 377, 380
Foreign aid 376, 381, 382
Government 374, 375, 377, 380
Health care 380, 381; Hospitals 380; Traditional healers 378, **379,** 383
Housing 376, 377
Income, per capita 376; Increase in 377, 384
Independence 371, 374
Infant mortality 376, 381, 383
Life expectancy 383; Increase in 372
Map 377
Population 376; Growth 377, 381, 386
Poverty 372, 375-376
Refugees 371, 377, 381, 382, **386;** Resettlement centers 381-382, map locating 377
Relations with South Africa 371, 376
Schools *see* Kamuzu Academy; Soche Hill Secondary School
Malawi, Lake, Africa 375, **380;** Fish species 380; Map 377
Malecón, Havana, Cuba **278-279,** 291
Mambo, Wyse 382, 383
Man, prehistoric: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
Mancinelli, Fabrizio 696; On Assignment, in the Sistine Chapel. Dec.
Mandibular mesh **754**
Mani Rimdu festival: ***Rebuilding a Monastery on the World's Roof.*** Sept. Geographica
Manna: Aphid honeydew 416
The Many Lives of Old Havana. By Joseph Judge. Aug., 278-300
Maomao, blue **510-511**
Map supplements:
Asia-Pacific; Western Pacific Rim. Nov. supplement
France; Historical France—Evolution of a Nation. July supplement
Holy Land, Special Places of the World map series. Dec. supplement
Land of the Maya, A Traveler's Map; The Ancient Maya World. Oct. supplement
Mapmaking: ***No Square Corners on a Round World.*** Sept. Geographica; ***Oldest Geologic Map, Fit for a Pharaoh.*** Nov. Geographica; ***A Treasure of a Map Barely Evades Auction.*** Aug. Geographica
Maps:
Africa: Elephant study sites 265
Alaska: Oil spill route (1989) 262; Trans-Alaska Pipeline 262
Annapurna Conservation Area Project (preserve), Nepal 397
Arizona: Kayenta formation. Dec. Geographica
Asia-Pacific; Western Pacific Rim. Nov. supplement
Baja California (peninsula), Mexico 724
Caribbean region: Spanish treasure fleet routes 285
Champlain, Lake, Canada-U. S.: Historic ferry routes 550
Copán (site), Honduras 494-495

Egypt: Oldest geologic map. Nov. Geographica
Europe and Middle East: First Crusade route 334-335
France: *France; Historical France—Evolution of a Nation.* July supplement; France during the French Revolution 26-27; Nuclear reactor sites located 96; Rail routes 101; Tour de France, 1989 route 133
Havana, Cuba 285
Holy Land, Special Places of the World map series. Dec. supplement
Ituri Forest, Zaire 669
Japan, locating major gardens 646
Kenya, locating Amboseli National Park 265
Malawi 377
Maya sites 475; *Land of the Maya, A Traveler's Map; The Ancient Maya World.* Oct. supplement; Copán 494-495; Maya Route 424
Namibia, locating parks 265
Nepal: Annapurna Conservation Area Project 397
New Mexico: Zuni Indian reservation. Sept. Geographica
New Zealand 507; Location maps 510, 516, 524
North Atlantic: *Bismarck's* route 628-629
Pacific Ocean: *Asia-Pacific; Western Pacific Rim.* Nov. supplement
San Diego, Calif. 184-185
Sengwa Wild Life Research Area, Zimbabwe: Elephant tracking paths 275
United States: Shaker communities 310
Vietnam 557; Hanoi 570-571; Ho Chi Minh City, (Saigon) 610-611; Hue 597
Washington 786-787
World: Gallup geography test 818; Hereford "Mappa Mundi" (13th century). Aug. Geographica; Robinson projection compared to Mercator projection. Sept. Geographica
Yucatán Peninsula: Maya sites 424, 437; *Land of the Maya, A Traveler's Map; The Ancient Maya World.* Oct. supplement
Zaire River basin, Africa: Pygmy-populated areas 669
Zimbabwe, locating Sengwa Wild Life Area 265
Zuni Indian reservation, N. Mex. Sept. Geographica
Marat, Jean-Paul 27, 30-31, 32, 41; Death mask **41**
Margay **457-458**
Mariazell, Austria: Shrine **326-327**
Marie Antoinette, Queen (France) **38, 43;** Clothing allowance 150; ***The Great Revolution.*** By Merle Severy. July, 18-49; With Benjamin Franklin 53, **54-55**
Marine biology: ***New Zealand's Magic Waters.*** By David Doubilet. Oct., 507-529
Marlin 742, 743; Steaks **742**
Marmara, Sea of, Turkey: Fisherman **346-347**
Marne-la-Vallée, Paris, France: Public housing **64;** School **65**
Marriage customs: Vietnam 566
Marseille, France: Counterrevolution (1793) 37, map note 27; ***Unsettled Immigrants.*** By Thomas J. Abercrombie. July, 121-129
Martí, José 290-291
Martin, Rowan: Elephant tracking study 271, 272
Marville, Charles: Photo by **544**
Mary, Virgin: Yugoslavian village visitations: Pilgrims **343**
Masaka (oil exploration camp), Papua New Guinea 241
Mask of Maya jade **461**
Massachusetts Audubon Society: Belize project 465-466
Matadors: France **70-71**
Materials Reshaping Our Lives. By Thomas Y. Canby. Dec., 746-781
Maudslay, Alfred P. 492, 541; Photo by **503**
Maurer, Lawrence B. **367**
Mauritanians: France **123**
Maury, Jean-Paul 100-101
Maya: ***Copán: A Royal Maya Tomb Discovered.*** By Ricardo Agurcia Fasquelle and William L. Fash, Jr. NGS research grant. Oct. 480-487; ***Copán: City of Kings and Commoners.*** By George E. Stuart. Oct., 488-505; *Land of the Maya, A Traveler's Map; The Ancient Maya World.* Oct. supplement; ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479
Altars **496, 497,** 499-500, 501-502, 504
Ball court **483, 490, 491, 494**
Deities 434, 469, 497; Images **435, 468, 486, 487, 505**
Elite class 498-499, 501, 502, 504
European contacts, first 438, 440, 445, 450, 463, 469
Glyphs 434, **454, 481,** 492, **496, 497, 498, 503,** 504, **504;** *see also* Hieroglyphic Stairway
Grave goods **460, 461, 468, 481, 482, 484-485, 486, 487,** 498
Pottery **481,** 482, **482,** 483, **486, 487,** 498, 499
Present-day **423, 427, 436, 438;** Boatbuilder **469;** Civil patrol **462-463;** *cofradías* convention **470,** 471, **471;** Handwoven clothing ***Oct. cover,*** **430-431, 464, 465,** Horse race **476-477;** Kite flying ceremony 471, **473;** Painted architecture **478-479;** *see also* Roman Catholicism, *below*
Pyramids **428-429,** 450, **451, 455, 483**
Roman Catholicism 446, 447, 462, 463, 469; Celebrations **425-426, 476-477;** First Communion **446-447**
Sacrifice rituals: Animal **497,** 501; Human 445, 446, 469, 485, bloodletting 442, 446, 501
Sculpture **452, 488-489, 492, 493,** 501, 504, **505;** Stelae **455,** 488, 496, **498,** 500; Stone portraits **488-489,** 490, **496, 497,** 499, 500
Sites 450, **452-455;** Looting 465-466, trench **452;** *see also* Calakmul; Chan Chich; El Mirador; Izamal; Naj Tunich; Palenque; Quiriguá; Río Azul; Tayasal; Tikal; Tulum
Spanish conquest 434, 447, 463, 468-469
Trade 498; Routes 440, 468, 469
Maya Biosphere Reserve (proposed), Guatemala 438, 466, 475
Maya Peace Park (proposed), Belize-Guatemala-Mexico 438, 466
Maya Route *see* La Ruta Maya
Mayersville, Miss.: Mayor 223, **223**
Mayland, Don: Burlington teamboat survey **553**
Maze, Stephanie, photographer: ***Darcey: A Village That Refuses to Die.*** July, 138-145; On Assignment, in France. July
Mazué, Georges **140,** 143
Mazué, Jean Louis 141, 142
Medal of Honor: ***Buffalo Bill Returns to Medal of Honor Roll.*** Dec. Geographica
Medicine and health: France 130-131; Malawi 380, 381, traditional healers 378, **379,** 383; *see also* Jet lag; Prostheses
Medieval Europe: ***The Gothic Revolution.*** Photos by James L. Stanfield and Victor R. Boswell, Jr. July, 108-119; ***Retracing the First Crusade.*** By Tim Severin. Sept., 326-365; Sept. Editor's Page
Meditation: San Diego spa **196-197**
Mediterranean region: *Holy Land,* Special Places of the World map series. Dec. supplement; *Jason* project 816, 819, **820;** ***Nostalgic Dives Yield New Shipwreck Finds.*** July Geographica
Medjugorje, Yugoslavia: Pilgrims **343**
Meilleroux, Thomas 130, 131
Melk, Austria: Blacksmith **340**
Menéndez de Avilés, Pedro 281
Mercator projection compared to Robinson projection: ***No Square Corners on a Round World.*** Sept. Geographica
Mesoamerican civilizations *see* Maya
Metal fatigue 748, 779; Aircraft danger 748, 749, 779
Metals: ***Advanced Materials—Reshaping Our Lives.*** By Thomas Y. Canby. Dec., 746-781
Metcalfe, Malcolm **237**
Methow River valley, Wash.: Ranching 787, 790
Metric system: Introduction 26, 32
Metro Washington Park Zoo, Portland, Oreg.: Elephant vocalization research 266, voiceprints **266-267**
Metropolitan Opera star 207, **209**
Mexican-Americans: Washington 806
Mexico: ***Baja California: Mexico's Land Apart.*** Dec., 714-745; ***Disease Still Killing Mexico's Palm Trees.*** July Geographica; Geography test results 816, 817; *Land of the Maya,*

A Traveler's Map; The Ancient Maya World. Oct. supplement; ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479; ***Mexico Celebrates Recovery of Stolen Art.*** Nov. Geographica; ***San Diego—Where Two Californias Meet.*** By Neil Morgan. Aug., 176-205
Mexico, Gulf of: Heat flow readings 259; Oil leases 259
Mianus River, Conn.: Bridge collapse **777,** cause 776
Michelangelo: ***A Renaissance for Michelangelo.*** By David Jeffery. Dec., 688-713
Michigan, Lake, U. S.: ***Great Lakes Pollution: Still Dangerous.*** Dec. Geographica
Microchips: Telephone charge card **96**
Mid-Atlantic Ridge: ***A New, Long Look at Mid-Atlantic Ridge.*** Dec. Geographica
Middle America: *Land of the Maya, A Traveler's Map; The Ancient Maya World.* Oct. supplement; ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479; *see also* Copán
Middle East: *Holy Land,* Special Places of the World map series. Dec. supplement; *see also* Crusades
Migrant workers: Vietnamese 575-576; Washington 806, **804-805**
Miller, Bruce 466, **466**
Miller, Burnett: ***Muli: In the Footsteps of Joseph F. Rock.*** Dec. Geographica
Miller, Peter: ***A Castle Under the Louvre.*** July, 102-107
Mimicry: ***It's a Twig, a Catkin...No! It's a Caterpillar!*** Oct. Geographica
Mims, Ted 196-197, 200
Mini-explosion in White Tiger Births. Sept. Geographica
Minitel computer network: France **96,** 100
Minnesota: ***Personalized Maps for the Masses.*** Dec. Geographica
Minor, John **237**
Mirage 2000N (fighter jet) **78-79**
Miramar Naval Air Station, San Diego County, Calif. 180, 184
Mirror, plastic: Heliostat **751**
Missile, nuclear: France **78**
Mississippi River: Teamboats **548-549,** 549
Mistinguett **169**
Mitterrand, François **5;** Fashion museum established 156; ***Liberté, Égalité, Fraternité...Unité!*** By Wilbur E. Garrett. July, 2-5; Louvre renovations 14, 107
Modern dance: Pioneer 216, **217**
Moffett, Mark W.: ***Samurai Aphids: Survival Under Siege.*** Sept., 406-422
Molecules: Bonding 759; Defined 759
Mollusks *see* Nudibranchs
Mollymawk 524, **525**
Monasteries: Buddhist **573,** ***Muli: In the Footsteps of Joseph F. Rock.*** Dec. Geographica, ***Rebuilding a Monastery on the World's Roof.*** Sept. Geographica
Monkey-skin wrist guard 664, **671**
Monkeys: Ituri Forest, Zaire 672, 678, 679; ***The Outlook Brightens for India's Monkeys.*** Nov. Geographica; *see also* Howler monkeys
Monks, Buddhist: ***Muli: In the Footsteps of Joseph F. Rock.*** Dec. Geographica
Monoclonal-antibody technology, first marketed 188
Mont-Saint-Michel, France **69**
Montfort, Château de, France **68**
Moomba (oil and gas field), Australia 255; Pipelines 255
Moon Jaguar (Maya ruler): Stone portrait **497**
Moon pools: Oil exploration ship **256-257**
Morgan, Neil: ***San Diego—Where Two Californias Meet.*** Aug., 176-205
Morse, Richard 324-325
Moscow, U.S.S.R.: Kids Network participants 819, 821
Mosques: Damascus, Syria **358-359;** France 127-128
Moss, Cynthia 267, 268
Moss Temple, Kyoto, Japan 648, **650-651,** 655, 657
Motagua River Valley, Guatemala 498 *see also* Quiriguá
Mother's Day celebration: Malawi **374**
Moths, brown: Eggs 416, **417;** Larvae 416, **418-419**
Motion pictures: Lumière brothers' work 98
Motorbikes: Ho Chi Minh City, Vietnam **604-605,** 606, 614
Mouchot, Bernard 140, 141
Moulin Rouge, Paris, France: Cancan **158-159;** Performances 168; Singer **166**
Mount Baker-Snoqualmie National Forest, Washington 782, **782-783,** 798
Mount Lebanon, N. Y.: Auction 319, 321; Founding 310; Shaker community 314, parent ministry 313, 316; Sufi congregation 316, 318
Mountain bikes: Police patrol vehicles 792, **792**
Mountain climbing: ***Tidying the "World's Highest Trash Pit."*** Oct. Geographica
Mountaineers (club) 790, 794
Mozambique: Civil war 371, 381, fatalities 382, 386, refugees 371, 377, 381, 382, **386**
Mubi River, Papua New Guinea: Waterfall **246**
Muktinath, Nepal: Shrines 397
Mulanje, Mount, Malawi: Deforestation 386
Mulegé, Baja California Sur, Mexico **719,** 731, 738
Muli: In the Footsteps of Joseph F. Rock. Dec. Geographica
Müllenheim-Rechberg, Burkard von, Baron 635, **635**
Mume blossoms 558, **562-563**
Murre, common: Oil spill victim **261**
Muscat, Oman: Oil well core library **241**
Museums *see* Louvre
Music and musicians: ***Paris:* La Belle Époque.** By Eugen Weber. July, 158-174
Music halls: France (1900) 166, 167, 168
Musical instruments **344,** 807
Muslims: First Crusade, slaughter during 334, 361, 364; France 121, **124,** Marseille **120,** 121, 124, **125,** 127-128, **128,** 129; Seljuk Turks 334, 348-349, 351, 354
Muso Soseki 655, 657; Poem by 657
Muybridge, Eadweard 541, 544
Myriad Gardens Crystal Bridge, Oklahoma City, Okla. **771**

N

Nagai, Ryusho 764, 766
Naj Tunich (site), Guatemala: Glyphs 434, **454**
Nakane Kinsaku: Garden designed by **652-653;** Quoted on arranging stones 662
Namibia: Elephant vocalization research 269-272, 275-277
Nanterre, France: Regional social welfare office 131
Nantes, France: Massacres during French Revolution 42, 44
Napoleon I, Emperor (France) 26, 27, 44, 48, 98; Arc de Triomphe construction 6; Fashion policies 156
Napoleon III, Emperor (France) 156, 164
Narcoossee, Fla.: Shakers 316
National Assembly (France): ***The Great Revolution.*** By Merle Severy. July, 18-49
National Endowment for the Arts: Outstanding American Folk Artist (1988) 211, **211**
National Fine Arts School; Paris, France: Initiation party **84-85**
National Front Party, France 126
NATIONAL GEOGRAPHIC:
Alaska oil spill coverage 263
Environment division created. Dec. President's Page
X-ray scans commissioned 366, **368**
National Geographic Kids Network: ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821
National Geographic Society (NGS):
Archaeologist (George E. Stuart). On Assignment. Oct.
Awards Received and Noted in NGM: ***A Ride for Wildlife.*** Oct. President's Page
Board of Trustees. Sept. President's Page
Cartographic Division. Sept. Geographica
Committee for Research and Exploration. Sept. President's Page
Geography education programs: ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821; ***A Ride for Wildlife.*** Oct. President's Page
Gifts from: Burlington teamboat

scale model 555
Grants:
Copán tomb excavation 482
Elephant vocalizations 267, 269
Geophagy in Guatemala: ***Eating Clay Tablets as an Act of Faith.*** Dec. Geographica
Ituri Project 668
Kayenta rock formation dating: ***Dating the Kayenta, Sorting Out Evolution.*** Dec. Geographica
Prairie rattlesnake study: ***For a Male Rattlesnake, Life is Full of Troubles.*** Oct. Geographica
Tulum lighthouse study 444-445
President, former *see* Payne, Melvin M.
President's Report: ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821
National Geographic Society Education Foundation: ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821
National Geography Awareness Week (1989) 821; Nov. President's Page; Dec. President's Page
National Geography Bee: ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821; Winner **687,** 818, **819**
National Governors' Association: Award recipient 821
National historical parks, U. S.: ***A Zuni National Park: 1,600 Years of History.*** Sept. Geographica
National Institutes of Health: ***Wild Chimps' Status to Be Ruled Endangered.*** Aug. Geographica
National Museum of Anthropology, Mexico City, Mexico: ***Mexico Celebrates Recovery of Stolen Art.*** Nov. Geographica
National parks: Hungary **338-339;** Malawi 387; Middle America: ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479; New Zealand *see* Fiordland National Park; National historical parks
National Wetlands Policy Forum: ***EPA's Wetland Goal: No Net Loss.*** Aug. Geographica
National Wildlife Federation: ***Great Lakes Pollution: Still Dangerous.*** Dec. Geographica
Nature Conservancy: Belize 466
Navigation satellites: ***Tiny Step up Mountain, Big Step for Navigation.*** Oct. Geographica
Neandertals: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
Necklace, jade **485,** 498
Negroni, Jean **40**
Neoprene: Invention of 770
Nepal: ***Annapurna: Sanctuary for the Himalaya.*** By Galen Rowell. Sept., 391-405; ***Rebuilding a Monastery on the World's Roof.*** Sept. Geographica
Neuville, René **72**
A New, Long Look at Mid-Atlantic Ridge. Dec. Geographica
The New, the Enduring Paris. Photos by James L. Stanfield. July, 6-17
New Lebanon, N. Y.: Auction 319, 321; Founding 310; Shaker community 314, parent ministry 313, 316; Sufi congregation 316, 318
New Shoreham II (cruise ship) **441**
New-wave Submersibles Race for Design Honors. Nov. Geographica
New Year celebrations: Vietnam *see* Tet
New York, N. Y.: ***Nine Men's Morris in a Manhattan Cellar.*** Aug. Geographica; Tenement, 1887 (Riis photo)**544-545**
New Zealand's Magic Waters. By David Doubilet. Oct., 507-529
Newbigging, Kirk **257**
Newman, Cathy: ***The Fine Feathered Nest—'La Protection Sociale.'*** July, 130-131; ***Letters from France.*** By Don Belt, Cathy Newman, and Cliff Tarpy. July, 56-91; On Assignment, in France. July; ***The Shakers' Brief Eternity.*** Sept., 302-325
Ngo Dinh Diem 600, 601
Ngo Quoc Toan **578**
Nguyen dynasty (Vietnam): Capital at Hue 595, 596, 597; Tombs **596-597, 598, 599,** map locating 597
Nguyen Hoang 595, 596
Nguyen To Manh **616, 617**
Nguyen Van Linh 572, **584**
Nicaea, Turkey **350-351;** Crusaders' siege 349, 351, 352-353, capitulation to Byzantine emperor 349-350, 353; Ecumenical council (A.D. 325) 352; Fortress wall **350-351, 352-353**
Nice, France: High-rise apartments near **69**
Nichol, Liz: ***Tidying the "World's Highest Trash Pit."*** Oct. Geographica
Niger: Oil exploration 234, 236
Nijinsky, Vaslav 168, 170, **170**
Nijo Castle, Kyoto, Japan: Builder 661
Nine Men's Morris in a Manhattan Cellar. Aug. Geographica
Nineteenth century: ***A Bygone Century Comes to Light.*** By Robert M. Poole. Sept., 366-369
Nippon Television Network Corporation: Sistine Chapel restoration funding and documentation 700, **701**
Niskayuna, N. Y.: Shaker settlement 304, 309, orphans **310-311**
Nitrogen 759; High-temperature superconductors use 760, 761; Ion beam **781**
No Square Corners on a Round World. Sept. Geographica
Nobel Prize: French recipients 98
Nobility: France (18th-century) 25, 26, 27, 35, 40; Estates General 24, 28; Manorial estates 25, **31**
Noble gases 759
Nocquard family 142
Norbu Sherpa, Mingma 398, 404
Norfolk (cruiser): Final engagement with *Bismarck* 627, 628; Pursuit of *Bismarck* 628, 629
North Cascades National Park, Wash. 790
North Sea: Oil rig, offshore **226-227;** Seismic surveys 236, preparations **236-237**
North Union, Ohio: Closure of Shaker community 316
Nose implant **754**
Nostalgic Dives Yield New Shipwreck Finds. July Geographica
Notre Dame, Cathedral of, Amiens, France: Choir stall panel **108;** Nave **111-113,** height 113; West facade **108-110**
Notre Dame, Cathedral of, Paris, France **60, 119;** Construction dates 118; Flying buttresses 118; French Revolution 26, 37
Notre Dame, Cathedral of, Reims, France: Sculptures, facade **114**
Nuclear fission: Breeder-reactor chain reaction **96-97**
Nuclear missile, tank-mounted **78**
Nuclear power: ***High Tech: The Future Is Now.*** By Michael E. Long. July, 92-101
"Nude Broad Jumping" (Eakins) **546-547**
Nudibranchs **523;** Clown **512**
Nursery: France 130-131
Nyasaland *see* Malawi
Nylon 759; Invention 770

O

Oak trees: ***It's a Twig, a Catkin...No! It's a Caterpillar!*** Oct. Geographica
Oban, Stewart Island, New Zealand: Marine life **528-529**
Obispo Street, Havana, Cuba **282-284**
Obsidian: Maya artifacts 499, 504
Oceanography: ***A New, Long Look at Mid-Atlantic Ridge.*** Dec. Geographica
O'Connor, Maureen **193,** 196
Ohio: Shaker communities 309, 316, map locating 310
Ohio River: Two-horse ferry **550**
Oil exploration: ***The Quest for Oil.*** By Fred Hapgood. Aug., 226-259
Oil spills: ***Tragedy in Alaska Waters.*** By Douglas B. Lee. Aug., 260-263; Dec. President's Page
Ojeda, Martín and Pepe **735**
Okanogan River, Canada-U. S.: Horse race course 800
Okayama, Japan: Korakuen garden **654,** 656, **656**
Oklahoma City, Okla.: Race track **750-751;** Skyline **771**
Old Havana, Cuba: ***The Many Lives of Old Havana.*** By Joseph Judge. Aug., 278-300; Aug. Editor's Page
Architecture **278-279, 282-284, 288-289, 294-295;** Moorish influence **283-284;** Cuban style **282**
Buildings: Age 280, 286; Electrical wiring **293;** Number 280, 281, 286, 293; Oldest house **283**

Campeche quarter 290
Culture: African influences 297; Arts performances **282-284**; Museums 280, 297
Forts 280, **281,** 291
Harbor **286-287,** 291, pollution 280, 287
Map 285
Museums 280, 297
National monument status 293
Plazas 280, 281, 299
Residents 288
Restoration 280-281; Budget 281, 293; Forts 291; Homes 290, **294-295,** 296, 299-300; Palace **294-295;** Street **292, 293;** Workers 281, **292-293**
Tourists: Bars 296; Nationalities 293, 296; Noted 291, 296; Restaurants **294-295;** Restrictions 293
UNESCO designation 280, 293
Urban decline 289
Oldest Geologic Map, Fit for a Pharaoh. Nov. Geographica
Olympic Games: Revival (1896) 167; Summer 1960 gold medalist **213-214**
Olympic Peninsula, Wash.: Annual rainfall 786
Omak Suicide Race **800-801**
Oman: Oil exploration **242-243, 244-245;** Oil well core library **241;** Rock formations **240**
On Assignment:
Allard, William Albert, in France. July
Arthus-Bertrand, Yann, in France. July
Bailey, Robert C., with Efe Pygmies in Zaire. Nov.
Barbey, Bruno, in France. July
Boswell, Victor R., Jr., in the Sistine Chapel. Dec.
Colalucci, Gianluigi, in the Sistine Chapel. Dec.
Garrett, Kenneth, covering La Ruta Maya. Oct.
Garrett, Wilbur E., in France. July; on La Ruta Maya. Oct.
Harvey, David Alan, in Vietnam. Nov.
Hyde, Nina, in France. July
Jeffery, David, in the Sistine Chapel. Dec.
Lanker, Brian, covering the black women story. Aug.
Long, Michael E., in France. July
Mancinelli, Fabrizio, in the Sistine Chapel. Dec.
Maze, Stephanie, in France. July
Newman, Cathy, in France. July
Peacock, Nadine, with Efe Pygmies in Zaire. Nov.
Putman, John, in France. July
Raymer, Steve, in France. July
Reed, Eli, in Malawi. Sept.
Ripert, Claudine, in France. July
Roper, Candace, in France. July
Severy, Merle, in France. July
Smith, Mary, in France. July
Stanfield, James L., in France. July
Stuart, George E., in Copán. Oct.
Theroux, Paul, in Malawi. Sept.
Tran Van Dinh, in Vietnam. Nov.
White, Peter T., in Vietnam. Nov.
"On the Art of Fixing a Shadow: 150 Years of Photography" (exhibit) 547
"1-2-3" superconductor 760; Structure **760**
Opening a Boxful of History. By Robert M. Poole. Sept., 366-369
Operation Smile International 574; Volunteer **574**
Opium addicts: Ho Chi Minh City, Vietnam 614, **618-619**
Optoelectronics: Plastics 773
Orbital floors **754**
Orchards: Washington **804,** 805-806
O'Rear, Charles, photographer: ***Advanced Materials—Reshaping Our Lives.*** Dec., 746-781; ***High Tech: The Future Is Now.*** July, 92-101
Ortiz, Rachael 200, 202
Oryx, Arabian: Reintroduction to wild 190
Osborn, Loki 269, 271-272
Otters: Oil spill victims 261, **262, 263**
Our Year in Review: Superpowers Not So Super in Geography. By Gilbert M. Grosvenor. Dec., 816-821
The Outlook Brightens for India's Monkeys. Nov. Geographica
Owen-Smith, Garth 275, 276
Owl motif: Maya artifacts **460, 485**
Oxygen 759, 760

P

Pacemakers, heart **754**
Pacific Northwest (region), U. S. *see* Washington
Pacific Ocean: *Asia-Pacific; Western Pacific Rim.* Nov. supplement
Packaging, plastic 772
Paine, Thomas **53;** Imprisonment in France 55
Paint pigment analysis: Sistine Chapel frescoes 698, **698**
Painting: ***A Renaissance for Michelangelo.*** By David Jeffery. Dec., 688-713
Paipai Indians **726-727**
Palenque (site), Mexico **423,** 450, **454-455**
Paleontology: ***Dating the Kayenta, Sorting Out Evolution.*** Dec. Geographica
Palestinian refugees **360**
Palfreys: First Crusade 341
Palm trees: Chit palm 441; Cohune palm 465; ***Disease Still Killing Mexico's Palm Trees.*** July Geographica; Japan **658;** *xate* palm 467
Palouse River and region, Wash. **808-809;** Wheat fields **784-785**
Pan American Highway: Guatemala **472-473**
Papeete, Tahiti: Churchgoers **88**
Papua New Guinea: Oil exploration 229, 236, 243, 245, **250-251,** camp 241, crews **241, 247, 248, 248-249,** exploratory well **251,** helicopters 241, 242, **246, 247,** 248
Parachuting: French Alps **66-67**
Paradise (lodge), Mount Rainier, Wash. 790
Paris, France:
The Business of Chic. By Nina Hyde. July, 147-157
A Castle Under the Louvre. By Peter Miller. July, 102-107
The Great Revolution. By Merle Severy. July, 18-49
Letters from France. By Don Belt, Cathy Newman, and Cliff Tarpy. July, 56-91
The New, the Enduring Paris. Photos by James L. Stanfield. July, 6-17
19th century **533, 544**
***Paris:* La Belle Époque.** By Eugen Weber. July, 158-174
American expatriates 162, 172, 174; Cultural influence 166-167
Art, modern 162, 170-171, 172
Automobiles 164; Exports 164
Cafés **162,** 167-168, 174
City planning (1850s-1900) 161, 164
Dance: Ballet 168, **170;** Cancan **158-159,** 168; Halls 168, American expatriate patronage 174
Exhibition (1900) 161, **161-162,** 167
Fashion 164, 166
Living conditions 163-164
Movements: Avant-garde 170-172; Bohemianism 174; Cubism 162, 171; Dadaism 172; Fauvism 170-171; Impressionism 170; Surrealism 171, 172
Music 167, 168, 170; *Cinéma* 168, performers 168, **169;** Halls 166, attendance 167-168; Opera 168
Sports 167
Theater 166, 167
World War I 172
Paris summit (July 1989): ***Environmental Promises.*** Nov. President's Page
Parthenogenesis: Aphids 411
Payne, Katharine: ***Elephant Talk.*** NGS research grant. Aug., 264-277; Aug. President's Page
Payne, Melvin M. Sept. President's Page
Peace Corps: ***Malawi: Faces of a Quiet Land.*** By Paul Theroux. Sept., 371-389
Peacock, Nadine: On Assignment, with Efe Pygmies in Zaire. Nov.
Pearls: Baja California (peninsula), Mexico 721, 731
Peasants' crusade (11th century) 334, 341, 348-349; Map of route 334-335
Peccary head artifact **460**
Pectus implant **754-755**
Pegasus II (ship) **511**
Pei, I. M. 14, **107;** Louvre pyramid entrance design **13-14,** 102, **106,** 107, **107**
Pelicans, brown **715-716, 742**
Penile prosthesis **755**
Pérez Llama, Ramón **298-299**
Périgord (region), France: Truffle-hunting pig **74**
Periodic table 752, 757, **757-759;** Electron shells determine arrangement 759

Personalized Maps for the Masses. Dec. Geographica
Pet trade: Mexico 442, 456
Petén region, Guatemala: Landsat image **474-475;** Palm tree product 467; *see also* Tikal
Peter the Hermit 334, 341, 348-349; Map of crusade route 334-335
Petrignani, Filippo 696, **713**
Pfaller, Maria **336**
Pha Mann and family **200**
Pham Van Dong: Education 598
Phelps, Lillian 313, 314
Pheromones: Ants 416
Philadelphia, Pa.: Print (1820) **556;** Shaker congregation 310
Philip Augustus, King (France): Paris fortifications 102, 104, foundation **102, 104-105**
Photodegradability: Plastics 751, 772
"photogenic drawing": Lace **532**
Photogrammetric survey: Sistine Chapel ceiling 698, 713
Photography: Daguerreotypes 98; ***Seizing the Light: Photography's First Fifty Years.*** By Erla Zwingle. Oct., 530-547
Picasso, Pablo 170; Art 162, 171
Pickpockets: Ho Chi Minh City, Vietnam 614
Pig, truffle-hunting **74**
Pigeon guillemot: Oil spill victim **262**
Pigfish, southern 526, **526, 527**
Pike Place Market, Seattle, Wash. **791,** 806
Pilgrims: Christian *see* Crusades; Muslim **358-359;** Yugoslavia **343**
Pimentel, Iván **300**
Pine trees, protected for winter **658-659**
Pineapple Beach, Vung Tau, Vietnam 620
Pins, absorbable **755**
Pirus (youth gang) 197, 200
Pisang, Nepal: Buddhist monastery **398**
Pita, Estanislao **298-299**
Pittsfield, Mass. *see* Hancock Shaker Village
Planetary systems, possible: ***Is That a Planet Circling HD 114762?*** July Geographica
Plastics: ***Advanced Materials—Reshaping Our Lives.*** By Thomas Y. Canby. Dec., 746-781
Auto engine **768**
Auto parts 770, 772, 773
Building material **771**
Bulletproof 772, **772**
Color changing 746
Components 757, 759, 770
Degradable 751, 772
Electrical conduction 773
Insulation 770, 773
Invention 770
Lifetime 772
Molecular chains 770; Diagram **770**
Number of 770
Properties 750, 770
Prostheses 746, **747, 754-756,** 773
Race track use **750-751**
Recycling 751, 772
Waste disposal problem 751, 772
Plate tectonics: Baja California (peninsula), Mexico 729; ***A New, Long Look at Mid-Atlantic Ridge.*** Dec. Geographica
Platinum: Prostheses made from **754**
Pleasant Hill, Ky.: Closure of Shaker community 316; Disaster relief 314; Founding 307; Impact of Civil War 316; Restored village **302-303, 306-307, 308, 322-323;** Silk production, 19th-century 318
Plum Creek Timber Company: Reforestation efforts 795, 797
Plutonium 239 (isotope): Formation in breeder reactor **96-97**
Plymouth Belvedere (1958) **606-607**
Poaching: Elephants 276, 277
Poinsettias: Greenhouses 191, 193
Poitiers, France: High-tech complex near **64, 65**
Pokhara Valley, Nepal 395
Polar expeditions: ***"Time Capsule" Floats from the Pole to Ireland.*** Aug. Geographica
Pollen analysis: Copán Valley, Honduras 504
Pollution *see* Oil spills; Toxic pollution
Polymers 750, 770; Diagram **770;** Reflective **751;** *see also* Plastics
Ponce, Jacoba **195**
Ponce, Sheila **300**
Pont des Arts, Paris, France **15-17, 90-91**
Poole, Joyce 267, 268
Poole, Robert M.: ***A Bygone Century Comes to Light.*** Sept., 366-369
Poor Knights Islands, New Zealand: ***New Zealand's Magic Waters.*** By David Doubilet. Oct., 507-529
Porcelain: Rubber glove molds **765;** *see also* Ceramics
Porgy and Bess (Gershwin): First production 225
Porpoises: Gulf of California 740
Portier, Esteban José: Home restoration 281, 290
Portland, Oreg.: Zoo: Elephant vocalization research 266, voiceprints **266-267**
Portuguese: France 121, 144-145
Postage stamps: French Revolution commemoration **57**
Potato famine, Irish: Shaker relief effort 314
Pottery: Maya **481,** 482, **482, 483, 486, 487,** 498, 499; ***Vial of Anointing Oil Found in Israeli Cave.*** Oct. Geographica
Pouncing (fresco technique) **705;** Close-up **705**
Prairie rattlesnakes: ***For a Male Rattlesnake, Life Is Full of Troubles.*** Oct. Geographica
Prasad Gurung, Devi **399, 401**
Prehistoric man: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
President's Page (From the President):
July: ***Vive la différence.***
August: ***Right before our eyes.***
September: ***A champion of research.***
October: ***A Ride for Wildlife.***
November: ***Environmental Promises.***
December: ***A Year in the Life of Planet Earth.***
President's Report: Year-end Review. By Gilbert M. Grosvenor. Dec., 816-821
Price, Leontyne 207, **209**
Primates *see* Chimpanzees; Hominids; Lemurs; Monkeys
Prince of Wales (battleship): Pursuit of *Bismarck* 628, 629
Prince William Sound, Alas.: Oil spill. Dec. President's Page; ***Tragedy in Alaska Waters.*** By Douglas B. Lee. Aug., 260-263
Prinz Eugen (cruiser): Mission with *Bismarck* 628, 629
Prix Goncourt: 1987 winner **129**
PRODIGY (computer service) 821
Project Zoo (NGS computer courseware) 821
Promethium: Radioactivity 759
Pronatura 442, 448-449
Proskouriakoff, Tatiana 492
Prostheses: ***Advanced Materials—Reshaping Our Lives.*** By Thomas Y. Canby. Dec., 746-781
Proust, Marcel 63, 164, 172, **172**
Prudhoe Bay, Alas.: Oil exploration equipment **258-259**
Prussia 26, 27, 31, 32, 40
Przewalski's horses: San Diego Zoo breeding project 188, 190
Public housing projects: Marseille, France 128-129; Paris, France **64**
Puget Sound, Wash.: Ferry **788-789;** Ports *see* Seattle; Tacoma
Pulitzer Prize in fiction: Alice Walker (1983) 210; in poetry: Gwendolyn Brooks (1950) 223
Punta Allen, Mexico: Lobster industry 440, **440,** 441-442
Putman, John: On Assignment, in France. July
Puy du Fou (château), France: Historical pageant 38
Pygmalion: Performance of **22-23**
Pygmies: ***The Efe: Archers of the African Rain Forest.*** By Robert C. Bailey. NGS research grant. Nov., 664-686
Pyramid, glass, at Louvre entrance **1, 13-14,** 102, interior **106, 107**
Pyramids: The Americas: ***Copán: City of Kings and Commoners.*** By George E. Stuart. Oct., 488-505; ***Copán: A Royal Maya Tomb Discovered.*** By Ricardo Agurcia Fasquelle and William L. Fash, Jr. NGS research grant. Oct., 480-487; *see also* Calakmul

Q

Quakers, Shaking *see* Shakers
The Quest for Oil. By Fred Hapgood. Aug., 226-259
Quetzal Macaw (Maya ruler) 496
Quetzal, resplendent **457**
Quezaltenango, Guatemala: Wheat fields **472-473**

Quiriguá (site), Guatemala 499, 500

R

Races *see* Auto race; Bicycle race; Horse racing; Lilac Bloomsday Run
Radar: French system 101; Oil exploration 235, 241, diagram **234-235;** Superconducting receivers 761
Radiotracking: Elephants 271, 272, chart **275**
Rail, high-speed: France 96, **98-99,** 100, 101, 142 map of routes 101
Rain forests: ***The Efe: Archers of the African Rain Forest.*** By Robert C. Bailey. NGS research grant. Nov., 664-686; Global climate control 435; Landsat image **474-475;** ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479; Oct. Editor's Page; Papua New Guinea: Oil exploration 229, 236, **241,** 242, 243, 245, **247;** Sumatra (island), Indonesia: Oil exploration **230-231, 232,** 247, 248-249
Rainbows: Belize **432-433**
Rainier, Mount, Wash. **782,** 790; ***Tiny Step up Mountain, Big Step for Navigation.*** Oct. Geographica
Ranger, U.S.S.: Jet landing practice 193-194
Rapid solidification: Metals 776, 780
Rasa, Isla, Mexico: Birds **738,** 744
Rattlesnakes: ***For a Male Rattlesnake, Life Is Full of Troubles.*** Oct. Geographica
Rawls, John **248**
Raymer, Steve: On Assignment, in France. July
Ready-to-wear fashion industry 151, 155-156; Show **148-149**
Reagan, Ronald: ***The Growing U. S.—Expanding the Limits.*** Aug. Geographica
Rebars: Concrete 780
Rebuilding a Monastery on the World's Roof. Sept. Geographica
Recycling: Plastics 751, 772
Red River, China-Vietnam: Hanoi-Haiphong bridge **575;** Vietnamese rice fields **564-565,** 585
Red-tinged Auroras To Be Remembered. Nov. Geographica
Redmond, Wash.: Industry 787, 811-812
Reed, Eli, photographer: ***Malawi: Faces of a Quiet Land.*** Sept., 371-389; On Assignment, in Malawi. Sept.
Reeducation camps: Vietnam 617
Reforestation: Malawi 386
Refugees: ***Malawi: Faces of a Quiet Land.*** By Paul Theroux. Sept., 371-389; Palestinian **360**
Regensburg, West Germany: Roman military road 343
The Reign of Terror (French Revolution period) 55; Duration 26, 36, 44; Number arrested or killed 36, 44; Victims 26, 33, 36, 41, **42,** 44
Reims, France: Cathedral 37, facade sculptures **114**
Religions and religious groups *see* Buddhism; Christianity; Islam; Judaism; Shinto
Remington Park (race track), Oklahoma City, Okla.: Track **750-751**
Remotely operated underwater vehicle (ROV) **550,** 551
Remy, Judith **82, 83**
A Renaissance for Michelangelo. By David Jeffery. Dec., 688-713
Renown (research vessel): New Zealand voyage 507, 523
Reptiles *see* Snakes
Reshaping Our Lives. By Thomas Y. Canby. Dec., 746-781
Restored Sword, Lake of the, Hanoi, Vietnam 561, 572, 577
Restoring the Splendor of Angkor Wat. July Geographica
Retracing the First Crusade. By Tim Severin. Sept., 326-365
Revelle, Roger 183, 185, 203, **203**
Revolution, American *see* American Revolution
Revolution, French *see* French Revolution
Rewa, Maharaji of: White tiger capture: ***Mini-explosion in White Tiger Births.*** Sept. Geographica
Reyes, Arnulfo **723**
Rhesus monkeys: ***The Outlook Brightens for India's Monkeys.*** Nov. Geographica
Rice farming: Vietnam 564, **564-565,** 585, fertilizers 585
Richard of Haldingham and Lafford: ***A Treasure of a Map Barely Evades Auction.*** Aug. Geographica
Richland, Wash.: High school teams 803, 807, booster **807**
Right before our eyes. Aug. President's Page
Riis, Jacob A.: Photo attributed to **544-545**
Rikoriko Cave, Poor Knights Islands, New Zealand **511**
Río Azul (site), Guatemala 463, 465
Rio Bravo Conservation Area, Belize 438, 465-466, **466**
Río Dulce, Guatemala 441; Canoe builder **469**
Ripeau, Château, France: Lunch **77**
Ripert, Claudine: On Assignment, in France. July
Ritz (hotel), Paris, France 167, 172
"river washers" **663**
Roanne, France: Restaurant kitchen **75-77**
Roberts, Gelín 729, 731
Roberts, Norman 728-729, 731
Robespierre, Maximilien 54-55; ***The Great Revolution.*** By Merle Severy. July, 18-49
Robinson projection compared to Mercator projection: ***No Square Corners on a Round World.*** Sept. Geographica
Rochon, Henri **86**
Rock, Joseph F.: ***Muli: In the Footsteps of Joseph F. Rock.*** Dec. Geographica
Rock, Mike. July President's Page
Rock churches: Cappadocia **330-331**
Rodney (battleship): Final engagement with *Bismarck* 627, 628
Rodríguez, Silvio **283**
Rohan, Josselin de **80,** 81, **81**
A Role for the Male in (Fish) Childbirth. Sept. Geographica
Roman Catholicism: Cuba 299; French Revolution 24, 26, 27, 36-37, 39; French villages 143; Maya 425-426, 446, 447, 462, 463, 469; *see also* Crusades
Roman roads, ancient 343, 349, **356-357**
Roman ruins: ***Herculaneum's Dead Still Tell Tales.*** Oct. Geographica
Rome, Italy *see* Vatican City
Roper, Candace: On Assignment, in France. July
Rosalia, Wash.: Dance **806**
Rosarito Beach, Baja California, Mexico: Visitors **725**
Rossi, Maurizio 696, 698, 700, **705**
Rousseau, Jean-Jacques 29; Home **29;** Philosophy 32, 50
Rowell, Barbara 400, 404
Rowell, Galen: ***Annapurna: Sanctuary for the Himalaya.*** Sept., 391-405
Royal Geographical Society award: ***A Ride for Wildlife.*** Oct. President's Page
A Royal Maya Tomb Discovered: Copán. By Ricardo Agurcia Fasquelle and William L. Fash, Jr. NGS research grant. Oct., 480-487
Royston, Ivor **203**
Rub al Khali (desert), Oman: Oil exploration **244-245**
Rubber, synthetic: Molecules 770
Rubber glove factory: Dothan, Ala. **765**
Rudolph, Wilma **212-213,** 213
Rumpelstiltskin syndrome 780, 781
Russell, Andrew Joseph: Photos by **542-543,** 546
Russian Revolution: Parallels to French Revolution 55
Rwanda: Pygmies 665
Ryoanji, near Kyoto, Japan: Gardens **646-647, 649,** 657

S

Sabbathday Lake, Me.: Shaker community 304, 314, 321, covenant dispute 314, 321-325, herb business **316-317,** meetinghouse **317**
Sabine River, Tex.-La.: Offshore drilling rigs **252**
Sabolich prostheses **754-756**
Saigon: Fourteen Years After. By Peter T. White. Nov., 604-621
Saigon River, Vietnam **610-611,** 611
Saihoji, Kyoto, Japan 648, **650-651,** 655, 657
St. Helens, Mount, Wash. 803, 805; Lava dome **798-799**
Saint-Julien, Cathedral of, Le Mans, France: Flying buttresses **115**
Saint-Just, Louis-Antoine de 32, 36
Saint Laurent, Yves: ***The Business of Chic.*** By Nina Hyde. July, 147-157
Saint-Laurent-des-Eaux, France: Nuclear reactor cooling tower **94-95**

St. Marys, Mo.: Teamboat crossing **548-549**
St. Patrick's Catholic church, Lanesboro, Minn.: ***Personalized Maps for the Masses.*** Dec. Geographica
Saint-Tropez, France: Battle reenactment actor **88**
Sainte-Chapelle, Paris, France: Interior **116-117;** Standing buttresses 117
sake tradition 655, 661-662
Sakuteiki (garden manual) 647-648
Salinas de Gortari, Carlos: Biosphere reserve creation 428-429, agreement with Guatemala 436, 438, meeting **475,** 478
Salk Institute, San Diego, Calif. 185, 203
Salmon fishing: Washington 799, **810-811,** 811
Salt domes: Oil formation **234**
Sampans: Vietnam **592-593**
Samurai Aphids: Survival Under Siege. By Mark W. Moffett. Sept., 406-422
Ant mutualism 416, **417**
Castes 406, 409; Evolution 411
Colony decimation 422, **422**
Defensive actions 406, **407**, 409, **409,** 414; Bites 406, 411, 412, **412**
Discovery 409
Gall dwellers 406, 410, 412, **412-413**
Honeydew production 416, **417**
Live births 411, **411**
Parthenogenesis 411
Predators 406, **409,** 414, **414, 415,** 416, **418-419,** 420-421, **420-421, 422**
Soldiers 406, **408,** 409, 411, 412, **419, 421, 422;** Heads 406, 409, **409, 410;** Population variation 411; Seasons affect 416; Sterile 406, 409
Species, number of 406
San Andrés, Mexico 471-472
San Diego, Calif.: ***San Diego—Where Two Californias Meet.*** By Neil Morgan. Aug., 176-205
Beach pollution 193; Warning sign **192**
Climate 183, 184
Crime 194, 196-197, 200
Cultural diversity 196, 200
Founding 183
Growth limitation measures 184, 186, 196
High-technology industry 179, 183, 185, 188, 203
Immigrants, illegal 180, 182, 194, 202; Camp **194-195**
Map 184-185
Mayor **193,** 196
Military bases 178-179, 180, 183, 193; Recruits **180-181**
Population 183; Growth 178, 184; Minorities 194, 200, **200,** 202, 203
Research facilities 185, 188, 203, **203**
Tijuana, relations with 182-183, 193, 196, 202, 203
University 183, 185, 203
Urban renewal 186, **186,** 196
Youth programs 194, 200, 202; Participants **194**
Zoo 182, 188, 190
San Diego Naval Training Center, San Diego, Calif.: Recruits **180-181**
San Diego Wild Animal Park, San Diego, Calif. 188, 190; California condor work 188; Elephant vocalizations study 266; ***A Welcome Increase in Condor Hatchings.*** Oct. Geographica
San Diego Yacht Club, San Diego, Calif.: America's Cup 189
San Diego Zoo, San Diego, Calif.: Endangered species work 182, 188, 190; Gorilla **182**
San Felipe, Baja California, Mexico: Tourists 725
San Francisco, Sierra, Baja California Sur, Mexico **732-733;** Inhabitants **734, 735, 737;** Ranches 733, 734, 736-737, 739
San Gregorio (ranch), Baja California Sur, Mexico 733, 736
San Ignacio, Baja California Sur, Mexico 739; Water 738-739
San Juan Chamula, Mexico 471
San Mateo Ixtatán, Guatemala **425-426, 462-463, 478-479**
San Pedro (ranch), Baja California Sur, Mexico 736-737
San Pedro México, Baja California Sur, Mexico: Fisherman 744
San Quintín Valley, Baja California, Mexico: Drip irrigation 738, **740-741**
Sanctuary for the Himalaya. By Galen Rowell. Sept., 391-405
Sanders, William T. 497, 498, 501
Santa Catarina, Baja California: Indians **726-727**
santería 297, 299; Rituals 297
Sanyo television assembly plant, Tijuana, Mexico **193**
Sarstoon River, Guatemala 440-441
Satellite images *see* Landsat images
Satellites: French 96; Oil exploration 235, 242, diagram **235;** ***Tiny Step up Mountain, Big Step for Navigation.*** Oct. Geographica
Sayil (site), Mexico **452**
Scapa Flow (naval base), Orkney Islands, Scotland: British Home Fleet 629
Scarification: Efe people **683**
Scarves, Shaker design **318**
Scelidosaurus (dinosaur): ***Dating the Kayenta, Sorting Out Evolution.*** Dec. Geographica
Schele, Linda 490, 500, 502, 504
Scientists Identify a New Lemur Species. Oct. Geographica
Scissors, ceramic 764, 766, **768**
Scorpionfish **508-509**
Scott, Gloria Dean Randle 211, **211**
Scribes, Maya 486, patron deities **435, 486, 487**
Scripps Clinic and Research Foundation, San Diego, Calif. 185, 188, 203
Scutes, dinosaur: ***Dating the Kayenta, Sorting Out Evolution.*** Dec. Geographica
Sea horse 526, **526**
Sea lettuce **528-529**
Sea lion, Hooker's **524-525**
Sea otters: Oil spill victims 261, **262-263**
Sea spider 519, **519**
Sea turtles 442; Hatchling **443;** Population recovery project 442, 444
Sea urchin: Long-spined red urchin **514-515**
Sea World, San Diego, Calif.: Killer whale and trainers **176-177**
Seabirds: Oil spill victims 261, **261,** 262, **262**
Seattle, Wash.: ***Washington State, Riding the Pacific Tide.*** By Mike Edwards. Dec., 782-815
Seaweed **508-509**
Sédillot, René 44-45, 48
Seibal (site), Guatemala 450, **452**
Seine (river), France: Boaters **161;** Night scene **46-47;** Pont des Arts **15-17, 90-91**
Seismic prospecting: ***The Quest for Oil.*** By Fred Hapgood. Aug., 226-259
Seizing the Light: Photography's First Fifty Years. By Erla Zwingle. Oct., 530-547
Seljuk Turks: Crusades against 334, 348-349, 351, 354; Jousting game **354-355;** Slaughter of peasant crusaders 348-349; Stronghold *see* Antioch
Sengwa Wild Life Research Area, Zimbabwe: Elephants, radiotracking of 271, 272, charts **275;** Map locating 265
Serbia, Yugoslavia: Monk **342**
Serra, Junípero 183
Severin, Tim: ***Retracing the First Crusade.*** Sept., 326-365
Severy, Merle: ***The Great Revolution.*** July, 18-49; On Assignment, in France, July
Shakers (religious sect): ***The Shakers' Brief Eternity.*** By Cathy Newman. Sept., 302-325; Sept. Editor's Page
Celibacy 304, 314
Communities 309, 310, 313, 316, map locating 310
Covenant 313, 314, 323-325
Design philosophy 306-307, 309, 319, 321
Economy 316, 318, 319, assets 324
Founder 304, 309, 313, 319
Inventions 318
Map, locating communities 310
Membership 304, 310, 314, 316, dispute 314, 321-325
Pacifism 316
Tenets of faith 304, 313, 314, 316
Sheet music: Shaker **309**
Shinto: ***In a Japanese Garden.*** By Bruce A. Coats. Nov., 638-663
Ships, human-powered 549, **556**
Shipwrecks: ***The Bismarck Found.*** By Robert D. Ballard. Nov., 622-637; ***Heyday of the Horse Ferry.*** By Donald G. Shomette. Oct., 548-556; ***Nostalgic Dives Yield New Shipwreck Finds.*** July Geographica
Shomette, Donald G.: ***Heyday of the Horse Ferry.*** Oct., 548-556
Shoulder prosthesis **754**
Shrimp fishing: Mexico 741
Sian Ka'an Biosphere Reserve, Mexico 442; Lobsters **440,** 441-442

Side-scan sonar 550; Image **550**
Sifaka, golden-crowned: ***Scientists Identify a New Lemur Species.*** Oct. Geographica
Silicon nitride: Ceramics made from 766, 767, **768,** 769
Silicone elastomer 759, 773; Prostheses **754-756,** 773
Silk production: France 156; Shaker communities 318, **318**
Silk scarves, Shaker-designed **318**
Silver nitrate: Photography 541, 544
Simons, Elwyn: ***Scientists Identify a New Lemur Species.*** Oct. Geographica
Sioux emblem: Aircraft **78**
Sistine Chapel, Vatican City: Ceiling restoration **687,** ***Dec. cover;*** On Assignment. Dec.; ***A Renaissance for Michelangelo.*** By David Jeffery. Dec., 688-713
Cleaning **688-689, 702,** ***cover;*** Solution used 697-698, 700; Steps 697, 698, **700**
Computer mapping 712-713; Screen images **712, 713**
Condition analysis 697, 698, 700, 707; Tests 698, **698, 699**
Criticism 696, 701
Documentation of process **701**
Past restorations 697, **699,** 700, 707, 713; Overpainting 698, 700, **705, 706;** Plaster anchors **707,** 713; Repainted hand **707;** Varnishing 697, 698, **698,** 700, 710, **710**
Plaster deterioration 696, 700, 707, **707, 712**
Sixtus IV, Pope: Sistine Chapel, building of 700
Skeleton, human: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica; ***Herculaneum's Dead Still Tell Tales.*** Oct. Geographica
Skeleton Coast Park, Namibia: Elephants 275-277; Map locating 265; Water holes created by elephants 275-276
Skullcaps: Ceramic prostheses 766
Skyscrapers: ***The World's Tallest Building-to-Be.*** Nov. Geographica
"The Slave Auction" (Watkins): Excerpt 208
Slavery: Cuba 296; U. S. 208
Sleep research: ***Lighting the Way to a Jet-lag Solution.*** Dec. Geographica
"smart card" **96**
Smith, Jan 236, 241, 243
Smith, Mary: On Assignment, in France. July
Smith, Wayne **314**
Smith, Willie Mae Ford 211, **211**
Smoke Imix (Maya ruler) 485, 486, 488, 499, 500; Stone portrait **497**
Smoke Monkey (Maya ruler) 500; Stone portrait **497**
Smoke Shell (Maya ruler): Building projects **494, 499,** 500, 504; Stone portrait **496**
Snake star **523**
Snakes: Fer-de-lance **459;** ***For a Male Rattlesnake, Life Is Full of Troubles.*** Oct. Geographica
Snowbell trees: Samurai aphid galls 412, **412-413**
Soche Hill Secondary School, Limbe, Malawi 375, 376, 377, 382-383, 388
Social welfare system, France: ***The Fine Feathered Nest—'La Protection Sociale.'*** By Cathy Newman. July, 130-131
The Society's Year. By Gilbert M. Grosvenor. Dec., 816-821
Soft tissue patch **755**
Software: French creations 101
Sohappy, David **810**
Solar maximum: ***Red-tinged Auroras To Be Remembered.*** Nov. Geographica
Solar power: Hot-water heater **401**
Solidification, rapid: Metals 776, 780
Solomon, Lonnie **257**
Sommerfield, William **369**
Songbirds: Population decline 467
Songs, animal: African elephants' estrus song 267-268, **268-269**
Soule, Gertrude 316, 325
South Africa: Foreign aid 376; Infant mortality 381; Migrant workers 380; Relations with Malawi 371, 376
South Island, New Zealand *see* Fiordland National Park
South Union, Ky.: Civil War destruction 316; Silk production, 19th-century 318
Southeast Asia *see* Kampuchea; Vietnam
Southern Ocean 507
Southworth, Albert Sands 530; Daguerreotype by **536**
Soviet Academy of Sciences: ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821
Space flights and research *see* European Space Agency
Space shuttles: Composite materials use 776; Materials research 780, 781; Planned 93; Rumpelstiltskin syndrome 780, 781
Spanish-American War: Sinking of U.S.S. *Maine* 287, raising 280
Special Places of the World map series: *Holy Land.* Dec. supplement, Dec. Editor's Page
Speech, human: ***Did Neandertals Speak? New Bone of Contention.*** Oct. Geographica
Spinal fixation device **755**
Spokane, Wash.: Lilac Bloomsday Run **802;** Metropolitan area 787
SPOT (imaging satellite) 96
Sprague, William P.: Vessel invented by **556**
Sprigg, June 319, 325
SQUID **762;** Image from **763**
Staddon, Jack **687,** 818, **819**
Stained glass windows: Chartres cathedral, France **114;** Saint-Julien, Le Mans, France **115;** Sainte-Chapelle, Paris, France **116-117**
Stainless steel: Components 758; Spinal fixation device **755**
Stalactites: Mexican cenote **444-445**
Stamps, postage: French Revolution commemoration **57**
Stanfield, James L., photographer: ***A Castle Under the Louvre.*** July, 102-107; ***The Gothic Revolution.*** Photos by James L. Stanfield and Victor R. Boswell, Jr. July, 108-119; ***The Great Revolution.*** July, 18-49; ***The Many Lives of Old Havana.*** Aug., 278-300; ***The New, the Enduring Paris.*** July, 6-17; On Assignment, in France. July
Star Hercules 624; Control center **625;** *Jason* Project 819, transmission **820;** Positioning system 625
Stargazer, giant (fish) **519**
Starkville, Miss.: Kids Network participants 821
Stars: ***Is That a Planet Circling HD 114762?*** July Geographica
Stars & Stripes (catamaran): America's Cup dispute 189; Owner **189**
Starship (aircraft) **748,** 774
"Stealth" bomber: Composite materials production 776
Steel: Carbon steel 759; Concrete reinforcement bars 780; Innovations 778, 779; Stainless steel 758
Steelhead trout 799, 805, 811
Steger, Will: ***"Time Capsule" Flouts from the Pole to Ireland.*** Aug. Geographica
Stein, Gertrude **163,** 172
Steinbeck, John: Quoted 721
Steinmetz, George, photographer: ***The Quest for Oil.*** Aug., 226-259
Stelae: Maya **455,** 488, 490, 496, **498,** 500, 504
Stephens, John Lloyd 490, 494, 504
Stewart, T. Dale. Sept. President's Page
Stewart Island, New Zealand: ***New Zealand's Magic Waters.*** By David Doubilet. Oct., 507-529
Stingrays: Gulf of California **745**
Storey, Rebecca 485, 501
Street gangs: San Diego 194, 196-197, 200
Stuart, David 434, **498,** 499-500
Stuart, George E.: ***Copán: City of Kings and Commoners.*** Oct., 488-505; Diagram by **482-483;** Maya research 434, 468, 478; On Assignment, covering the Maya ruins of Copán. Oct.
Submersibles: ***New-wave Submersibles Race for Design Honors.*** Nov. Geographica
Suez, Gulf of: Offshore oil rig **253,** roustabout **252**
Suffolk (cruiser): Pursuit of *Bismarck* 628, 629
Sufi congregation: Mount Lebanon, N. Y. 316, 318
Suizenji park, Kumamoto, Japan: Mount Fuji miniature **645**
Sumatra (island), Indonesia: Oil exploration **228-232,** 245, 247, 248-249
Summer Geography Institute. Oct. President's Page; ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821
Sumpango, Guatemala: Maya 471, ***Oct. cover,*** kite flying **473**

Super Maglev (train) **748**
Superconductors, high-temperature: ***Advanced Materials—Reshaping Our Lives.*** By Thomas Y. Canby. Dec., 746-781
Applications: Magnetic resonance imaging 760; Patents filed 763; Remote sensing prospecting 763; Submarine detection 763; SQUID **762,** image from 761, 763, **763;** Television antennas 761
Ceramics 760
Components 757, 758, 759, 760
Discovery 748, 760
Generator 761
Liquid nitrogen use 760, 761, **761**
Magnets levitated by 760, **761**
Operating temperatures 760; Record 760
Research 760, 761, 763
Structure **760**
Superphénix fast-breeder reactor **97**
Superplasticity: Metals 779-780
Surfboards: Composite materials 749
Swallows: Paris, France 164
Swan Fund: Grants: Ituri Project 668
Sweden: Geography test results 817, 819
Sweetbreads: Veal sweetbreads and vegetables **75**
Swiss Guard massacre during French Revolution 31, 40
Sydney, Australia: Oil exploration data computer analysis 249, 254
Synthetic rubber: Molecules 770
Syria *see* Damascus

T

Tachibanano Toshitsuna: Garden manual compilation 647-648
Tacoma, Wash.: Port 812, 814, 815
Tailored suits: Paris, France 164
Tain-l'Hermitage, France: Wine cellar **73**
Taiwan aphids **411;** Horns 411
Takaragawa hot springs, Japan **642-643;** *koi* **662**
Talbot, William Henry Fox: Photographs by **532,** 541
Tallet, Ulyse **74**
Tamandua anteater **459**
Tan Son Nhat (airport), Ho Chi Minh City, Vietnam 616
Tankers, oil: ***Tragedy in Alaska Waters.*** By Douglas B. Lee. Aug., 260-263
Tanks: Nuclear-missile-equipped **78;** Plastic armor 746
Tapir, Baird's **459**
Tarpy, Cliff: ***Letters from France.*** By Don Belt, Cathy Newman, and Cliff Tarpy. July, 56-91
Tattersall, Ian: ***Scientists Identify a New Lemur Species.*** Oct. Geographica
Tattoos, henna 124
Tayasal (site), Guatemala: History 468-469
Taylor, Paul **236**
Tea ceremony, Japanese **638-639,** 657, 661
Teamboats: ***Heyday of the Horse Ferry.*** By Donald G. Shomette. Oct., 548-556
Technetium: Radioactivity 759
Technology: ***Advanced Materials—Reshaping Our Lives.*** By Thomas Y. Canby. Dec., 746-781; ***High Tech: The Future Is Now.*** By Michael E. Long. July, 92-101
Teeth chipping: Efe **683**
Teflon prostheses: Cochlear implant **754**
Telchaquillo, Mexico: Maya girls **446-447**
Telephone system: France 97, charge card **96**
Temples: ***Restoring the Splendor of Angkor Wat.*** July Geographica
Tendon, temporary **755**
Tennis Court Oath 24, 26; Painting of **24-25**
Tennis championships 220
Tennis rackets: Composite materials 746, 749, 773
Tenruyji, Japan: Monastery 657
Tephra: Defined 803
Termites, roasted 381, **382**
Terns, elegant: Breeding ground 744
Terrasson, France: Baker **72**
Testicular implants **755**
Tet (celebration) 577-578, 600, 602; Firecrackers **568-569,** 577-578; Flowers 558, **562-563, 583**
Tet offensive (1968) 568, 600, 615
Texas: Oil fields 256
Texas Senate: First black elected since 1882 210
Textiles: ***Halting the Importation of Bolivian Textiles.*** Sept. Geographica; Maya **464, 465,** ***Oct. cover***
Theater: ***Paris:*** **La Belle Époque.** By Eugen Weber. July, 158-174
Theroux, Paul: ***Malawi: Faces of a Quiet Land.*** Sept., 371-389; On Assignment, in Malawi. Sept.
They Came to Stay. By Maya Angelou. Aug., 208
Thien Mu pagoda, Hue, Vietnam 596, 601; Guardian statue **598**
Thiery, Christopher **5**
Third Estate (France): Formation of the National Assembly 24, 29; Population, represented by 28
Thomas, Joann **182**
Thomas, Liz 266, 269
Thorung La (pass), Nepal **402-403,** 404
Tibet: ***Tidying the "World's Highest Trash Pit."*** Oct. Geographica
Tidying the "World's Highest Trash Pit." Oct. Geographica
Tigers, white: ***Mini-explosion in White Tiger Births.*** Sept. Geographica
Tijuana, Mexico: Border crossing 725; ***San Diego—Where Two Californias Meet.*** By Neil Morgan. Aug., 176-205
Tikal (site), Guatemala 450, 451, **451,** 468, 469; Tomb artifact **468**
Timber: Clear-cutting 782, **782-783,** 795, 797; Old growth 783
Timber milling: Washington 798
Time capsule *see* Box, centennial
"Time Capsule" Floats from the Pole to Ireland. Aug. Geographica
Tiny Step up Mountain, Big Step for Navigation. Oct. Geographica
Titanic, R.M.S.: Comparison with *Bismarck* 624
Titanium 758; Composite materials made from 777, 778, 780; Prostheses made from **754-756**
Titusville, Pa.: First oil well 233
To Huu 600, 603
Tocqueville, Alexis de: Quoted 1, 20
Todos Santos, Baja California Sur, Mexico: Children's Mass **728**
Todos Santos Cuchumatán, Guatemala **430-431, 476-477**
Tofukuji, Kyoto, Japan: Sand patterns **649**
Toklas, Alice B. **163**
Tokugawa Mitsukuni: Gardens created by 661
Tokugawa Yorifusa: Gardens created by 661
Tokyo, Japan: Office courtyard **640-641**
Tombs: ***Copán: A Royal Maya Tomb Discovered.*** By Ricardo Agurcia Fasquelle and William L. Fash, Jr. NGS research grant. Oct., 480-487; Hue, Vietnam **596-597, 598, 599**
Tongue: Maya bloodletting ritual 442
Toone, William: ***A Welcome Increase in Condor Hatchings.*** Oct. Geographica
Topknot fish **528-529**
Toronto, Canada: ***Bird Control Uses ...What Else...Birds!*** Oct. Geographica
Toucan, keel-billed **458**
Toula, Miloud **128**
Toulon, France: French Revolution 27, 37
Tour de France—An Annual Madness. By Gilbert Duclos-Lassalle. July, 132-137
Tourism: Eco-tourism 441, 445, 449, 466, Oct. Editor's Page
Toxic pollution: ***Great Lakes Pollution: Still Dangerous.*** Dec. Geographica
Trade: *The Ancient Maya World.* Oct. supplement; Nov. Editor's Page
Tragedy in Alaska Waters. By Douglas B. Lee. Aug., 260-263
Trains: English Channel route 100, 101; French high-speed train (TGV) 96, **98-99,** 99, routes 101; Magnetically levitated **748,** high-temperature superconductor application 761
Tram, horse-drawn: Paris, France 164
Tran Duc, and family **583**
Tran Tan 582, **585**
Tran Van Dinh **595;** ***Hue: My City, Myself.*** Nov., 595-603; On Assignment, in Vietnam. Nov.
Trans-Alaska Pipeline: Map 262
Trash: ***Cleaning Up the Coastlines.*** Nov. Geographica; Plastics, disposal of 751, 772; ***Tidying the "World's Highest Trash Pit."*** Oct. Geographica
A Treasure of a Map Barely Evades Auction. Aug. Geographica
Trebek, Alex **687,** 818

Tree galls: Aphids dwell in 406, 410, 412, **412-413,** aphids induce 410
Tree-planting program: Australia. Dec. President's Page
Trees: Composite materials 773, 774; Nepalese nurseries 404; ***When the Trees Cry, Do the Beetles Hear?*** Dec. Geographica; *see also* Palm trees
Trekking: ***Annapurna: Sanctuary for the Himalaya.*** By Galen Rowell. Sept., 391-405; ***Crossing Australia in a Camel Caravan.*** July Geographica
Tricolor (French national colors) **26,** 29, **49;** Banned 48; Origins 26, 50
Trident submarines **796;** Base 797
Triplefin, blue-eyed 512, **513**
Troev, Theodore 345, 348
Troisgros, Pierre: Kitchen of **75-77**
Tropical rain forests: ***The Efe: Archers of the African Rain Forest.*** By Robert C. Bailey. NGS research grant. Nov., 664-686; ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479; Oct. Editor's Page
Trout, steelhead: Washington 799, 805, 811
Trucks, vibrator: Oil exploration **243,** operator **244**
Truffle-hunting pig **74**
Trump, Donald, and Ivana 154
Truong Dinh Tien **567**
Tu Do (street), Ho Chi Minh City, Vietnam 611
Tu Duc, Emperor (Vietnam) 600; Necropolis **598**
Tuileries Palace, Paris, France: Daguerreotype (1839) **533;** Louis XVI and family brought to 30, 36, escape from 30, 38; Storming of 26, 31, 40
Tulum (site), Mexico 444-445, 450, **452-455**
Tundra: Oil exploration **254**
Tunisians in Marseille, France **126-127**
Tunnel complex, Cu Chi, Vietnam **616, 617,** 619
Turkey: Jousting game **354-355;** ***Nostalgic Dives Yield New Shipwreck Finds.*** July Geographica; ***Retracing the First Crusade.*** By Tim Severin. Sept., 326-365; Rock church **330-331**
Turkey, ocellated **457-458**
Turkish bath: Ambrotype **539**
Turks *see* Seljuk Turks
Turtles: Maya symbolism 442; Red-eared slider turtles **459;** Sea turtles 442, **443,** 444
Tussaud, Marie: Death masks cast by 41, **41**
Two Revolutions. By Charles McCarry. July, 50-55
Tyringham, Mass.: Closure of Shaker community 316

U

Ultrasonic acoustic emissions: ***When the Trees Cry, Do the Beetles Hear?*** Dec. Geographica
Ultraviolet fluorescence: Sistine Chapel fresco analysis 698, **699**
Ultraviolet light: DNA study **203**
Umayyad Mosque, Damascus, Syria **358-359**
Underwater exploration: ***The Bismarck Found.*** By Robert D. Ballard. Nov., 622-637; ***A New, Long Look at Mid-Atlantic Ridge.*** Dec. Geographica
UNESCO: Man and the Biosphere program in Central America 438, 473, 475, 478, map locating 437 *see also* Calakmul Biosphere Reserve; Maya Biosphere Reserve; Sian Ka'an Biosphere Reserve; World heritage sites 280, 293, 481, Aug. Editor's Page
Ungaro, Emanuel: Fashions **148-149**
Union, Lake, Seattle, Wash.: Floating hot tub **797**
Union of Soviet Socialist Republics: ***Our Year in Review: Superpowers Not So Super in Geography.*** By Gilbert M. Grosvenor. Dec., 816-821
Union Village, Ohio: Irish famine relief 314
The United Methodist Church: Woman bishop 222
United Nations Convention on the Law of the Sea: ***The Growing U.S.—Expanding the Limits.*** Aug. Geographica
United States: Bridges, unsafe 776, 780; Ceramics research 766, 767, 769; Geographic knowledge survey results 816, 817, 818; ***The Growing U.S.—Expanding the Limits.*** Aug. Geographica; Percentage of population lacking medical insurance 131; Plastics production 772; ***Vive la différence.*** July President's Page; *see also* American Revolution; California; Washington
U. S. Army: French radar system 101; French telephone system 101; Highest-ranking black female officer **215**
U. S. Border Patrol: ***San Diego—Where Two Californias Meet.*** By Neil Morgan. Aug., 176-205
U. S. Congress 210, 215
U. S. Department of Education: Geography education financial aid 821
U. S. Environmental Protection Agency: ***EPA's Wetland Goal: No Net Loss.*** Aug. Geographica
U. S. Fish and Wildlife Service: ***Wild Chimps' Status to Be Ruled Endangered.*** Aug. Geographica
U. S. Forest Service: Clear-cutting of timber 797
U. S. Geological Survey: Seismometers 803
U. S. History in a Box: A Bygone Century Comes to Light. By Robert M. Poole. Sept., 366-369
U. S. Information Agency: Cultural Property Advisory Committee: ***Halting the Importation of Bolivian Textiles.*** Sept. Geographica
U. S. Marine Corps: San Diego bases 180, 193
U. S. National Championships (Tennis): 1950 winner 220
U. S. Navy: Aircraft carrier jet landings 193-194; Jet aircraft **181;** Recruits **180-181;** San Diego bases 179, 180, 184, 193
University of California, San Diego (UCSD) 183, 185, 203
University of Pennsylvania: Tikal excavations 451, 469
Unsettled Immigrants. By Thomas J. Abercrombie. July, 121-129
Upmeyer, Neil 816, 818
Uranium 238: Use in breeder reactor **96-97**
Urban II, Pope: First Crusade initiated 334, 335, 345, 347
Urinal: Paris, France **544**
USWest, Inc.: Grant 225
UTAH-100 (artificial heart) **754**
Uxmal (site), Mexico 447, **452-453**

V

Vacuum chamber: Ion beam hardening **781**
Valdes Martinez, Federico **193**
Valley Forge, Pa.: Painting **50-51**
Van Cao 588, **588**
Van Putten, Mark: ***Great Lakes Pollution: Still Dangerous.*** Dec. Geographica
Varennes, France **38-39;** Capture of Louis XVI and family **38,** 39
Varnish, animal glue: Sistine Chapel frescoes 697, 710, **710**
Vases, Maya **435, 481**
Vatican City: ***A Renaissance for Michelangelo.*** By David Jeffery. Dec., 688-713
Velarde, Enriqueta **738,** 744
Vendéan terror (1793-1796) 27, 38; Mass executions 32, 42, 44, protest commemorating **32;** Peasant rebellion 26, 27, 37, 39, 42
Venus: Maya astronomy 434
Vergennes, Charles Gravier de 52, 53
Versailles, Palace of, France **22-23,** 24, 29, **34-35, 36-37**
Vests, bulletproof Kevlar 772
Vesuvius (volcano), Italy: ***Herculaneum's Dead Still Tell Tales.*** Oct. Geographica
Vial of Anointing Oil Found in Israeli Cave. Oct. Geographica
Vicuña textile import ban: ***Halting the Importation of Bolivian Textiles.*** Sept. Geographica
Vidal, Micheline 143-144
Viet Cong: Executions by 600
Vietminh 602, 617
Vietnam: ***Hanoi: The Capital Today.*** By Peter T. White. Nov., 561-593; ***Hue: My City, Myself.*** By Tran Van Dinh. Nov., 595-603; ***Saigon: Fourteen Years After.*** By Peter T. White. Nov., 604-621; Nov. Editor's Page
Vietnam War: American bombing of Hanoi 578, 582, bridge damage **575;** MIAs 576; Prisons for American soldiers 578, **579,** 582; Tet offensive (1968) 568, 600, 615; U. S. soldiers' coffins 576, **576-577,** 582
Villafan, Ignacio 204-205
A Village That Refuses to Die. By William S. Ellis. July, 138-145

Villefranche-sur-Saône, France: Nursery 130-131
Vionnet, Mme 152, 153
Vipya Plateau, Malawi: Tree plantations 386, charcoal making 386
Vive la différence. July President's Page
Vizcaíno Desert, Baja California (peninsula), Mexico: Oasis 738
Vo Nguyen Giap **578,** 589; Education 598, 603
Voice of Ho Chi Minh City (radio station) 614
Voiceprints, elephant 266, **266-269, 272-277**
Volcanic tubes: New Zealand 510, **510-511**
Voltaire: Beliefs 28; Estate **28;** Imprisonment 28; Sculpture **28**
Vu Ky 574, **575,** 589-590
Vu Thi Thuoc **566-567**
Vung Tau beaches, Vietnam 619-620

W

Walker, Alice **210;** Pulitzer Prize for fiction (1983) 210
Walled cities *see* Iznik
Washington, George **51;** ***A Bygone Century Comes to Light.*** By Robert M. Poole. Sept., 366-369; Letter from Lafayette 29; Relationship with Lafayette 50, 51
Washington: ***Washington State, Riding the Pacific Tide.*** By Mike Edwards. Dec., 782-815
Aircraft industry 787, 794, **794-795,** 807, 811
Asian-American culture 806-807
Computer-software industry 787, 811-812
Crops 785, 805-806
Environmental concerns 783, 785, 798-799
Facts and figures 786
Farms **784-785,** 787, 790
Fishing 786, 799, **810-811,** 811
Flag **786**
Indians 798-799, **800-801,** 803, **811**
International trade 785, 787, 797-798, 811, 814-815
Migrant workers **804-805,** 806
Ports 812, 814-815
Quality of life 787, 788-789, 790, 806, 807, 814
Timber industry 795, 797-798
Volcanoes **798-799,** 803, 805
Washington, D. C.: Art galleries 225; Government 210, 215; Libraries 223; Memorials **215**
Washington Public Power Supply System (WPPSS): Debt 803
Waste disposal: Plastics 751, 772
Wastes, industrial: Acid recovery 773
Water buffalo: Guatemala 441; Vietnam 564, **564-565**
Water pollution: ***Great Lakes Pollution: Still Dangerous.*** Dec. Geographica; ***Tragedy in Alaska Waters.*** By Douglas B. Lee. Aug., 260-263
Waterlily Jaguar (Maya ruler): Stone portrait **497**
Watervliet, N. Y.: Shaker settlement 304, 309, orphans **310-311**
Wattleton, Faye, and daughter 219, **219**
Wax figures 41, **41**
The Weather Machine (NGS computer courseware) 821
Weber, Eugen: ***Paris:* La Belle Époque.** July, 158-174
Webster, Daniel: Daguerreotype **536**
Webster, David 497, 498, 501
Weddings, Islamic: France 124, **128**
A Welcome Increase in Condor Hatchings. Oct. Geographica
Wenatchee, Wash.: Fruit growers' cooperative 785
West Bank: *Holy Land,* Special Places of the World map series. Dec. supplement; ***Vial of Anointing Oil Found in Israeli Cave.*** Oct. Geographica
West Indies *see* Cuba
Western Pacific Rim: *Asia-Pacific; Western Pacific Rim.* Nov. supplement; Nov. Editor's Page
Wetlands: ***EPA's Wetland Goal: No Net Loss.*** Aug. Geographica
Whales: Finback infrasound vocalizations 267
Wheat fields: Guatemala **472-473**
When the Trees Cry, Do the Beetles Hear? Dec. Geographica
Where Two Californias Meet—San Diego. By Neil Morgan. Aug., 176-205
"The Whirling Gift" (engraving) **311**
White, Nehemiah **311**
White, Peter T.: ***Hanoi: The Capital Today.*** Nov., 561-593; ***Saigon: Fourteen Years After.*** Nov., 604-621; On Assignment, in Vietnam. Nov.
White tigers: ***Mini-explosion in White Tiger Births.*** Sept. Geographica
Whittaker, Lou 790, 794
Whitten, Ken: Artificial arms **753**
Wichita, Kans.: Aircraft factory **748**
Wild Animal Park, San Diego, Calif.: Endangered species projects 182, 188
Wild Chimps' Status to Be Ruled Endangered. Aug. Geographica
Wildey, James **749**
Wildlife: Africa: ***Elephant Talk.*** By Katharine Payne. NGS research grant. Aug., 264-277; Malawi conservation programs 387, map locating game reserves 377
Wildlife: Asia: ***The Outlook Brightens for India's Monkeys.*** Nov. Geographica
Wildlife: Middle America: ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479
Willey, Gordon 496-497, 501
Williamson, Richard 482
Wilmot Pass, New Zealand 520-521
Wimbledon, England: Tennis champion (1957, 1958) **221**
Windmills: Paris, France **533**
Windsurfers: France **94-95**
Wine bottles: French wine cellar **73**
Wine making: First press tasting **138-139**
Wineshop: Darcey, France **142**
Witchcraft: Hungarian king's proclamation (12th century) 344
Women: ***"I Dream A World": America's Black Women.*** By Brian Lanker. Aug., 209-225
Woodman, Mike **248**
Woodpeckers, acorn **456**
Woods Hole Oceanographic Institution: Research: ***A New, Long Look at Mid-Atlantic Ridge.*** Dec. Geographica
Woolfitt, Adam, photographer: ***A Renaissance for Michelangelo.*** Dec., 688-713
Woolly aphids: ***Samurai Aphids: Survival Under Siege.*** By Mark W. Moffett. Sept., 406-422
Workers Club, Ho Chi Minh City, Vietnam 608
World Health Organization (WHO): AIDS study 380
World Heritage Sites (UNESCO): Copán (site), Honduras 481; Old Havana, Cuba 280, 293
World War I Memories Live in French Caves. July Geographica
World War II: ***The* Bismarck *Found.*** By Robert D. Ballard. Nov., 622-637
World Wildlife Fund: Bike-a-thon for. Oct. President's Page; Director of Asia/Pacific program 396; Elephant communication studies 266, 275; Nepalese project 396, 398
The World's Tallest Building-to-Be. Nov. Geographica
Worms, West Germany: Jewish cemetery **337**
Wrasse, Sandager's **514,** 515
Wrist implant **755**
Wyoming: ***For a Male Rattlesnake, Life Is Full of Troubles.*** Oct. Geographica

X

X-30 (hypersonic jet): Composite materials 777, 778; Construction 778, diagram **778;** Model 779
X-D process 777
X rays: Centennial box 366, **368;** Dental real-time imager 101; Hip replacements **752**
Xpuhil (site), Mexico **453**
Xunantunich (site), Belize **455**

Y

Yakima Indians: Dialect 799; Subsistence fishing **810-811**
Yakima Valley, Wash.: Orchards **804**
Yamashita, Michael S., photographer: ***In a Japanese Garden.*** Nov., 638-663
Yax Pac (Maya ruler) **491,** 501, 502, 504; Altar **496-497,** 499, 501; Building projects 496, 501
A Year in the Life of Planet Earth. Dec. President's Page
Yellowhead jawfish: ***A Role for the Male in (Fish) Childbirth.*** Sept.

Geographica
Yingling, Alisa. Oct. President's Page
Yorktown, Battle of (1781): French forces 51-52
Yoruba (people): Religion 297
young kum 807
Youth gangs: San Diego 194, 196-197, 200
Yttrium 758, 760
"Yucatán houses" 447
Yucatán Peninsula, Mexico: ***Disease Still Killing Mexico's Palm Trees.*** July Geographica; *Land of the Maya, A Traveler's Map; The Ancient Maya World.* Oct. supplement; ***La Ruta Maya.*** By Wilbur E. Garrett. Oct., 424-479
Yugoslavia: Crusade journey reenactment **340,** 345; Monastery **342;** Pilgrims **343;** Villager ***Sept. cover***

Z

Zacarías, Hipólito **728**
Zackay, Victor 763,764
Zaculeu (site), Guatemala **454-455**
Zaire: ***The Efe: Archers of the African Rain Forest.*** By Robert C. Bailey. NGS research grant. Nov., 664-686
Zambrana, Lina 291, 296
Zen Buddhism: ***In a Japanese Garden.*** By Bruce A. Coats. Nov., 638-663; Temples *see* Ryoanji, Japan; Saihoji, Kyoto, Japan
Ziegfeld, Florenz 156
Zimbabwe: Elephant vocalization research 271, 272, **275;** Infant mortality 381; Map locating Sengwa Wild Life Research Area 265
Zimmer prostheses **754-756**
Zirconia 757; Hip replacements **755**
Zirconium oxide: Knife and scissors blades made from **766,** cutting edge **766**
Zomba, Malawi 387
The Zoo (prison), Hanoi, Vietnam 582
Zoos: ***A Welcome Increase in Condor Hatchings.*** Oct. Geographica; *see also* Metro Washington Park Zoo, Portland, Oreg.; San Diego Zoo; Sea World, San Diego
Zuisenji, Japan 657
Zuni-Cíbola National Historical Park, N. Mex.: ***A Zuni National Park: 1,600 Years of History.*** Sept. Geographica
Zwingle, Erla: ***Seizing the Light: Photography's First Fifty Years.*** Oct., 530-547

INDEXING STAFF

Editor
JOLENE M. BLOZIS

Assistant Editor
ANNE K. McCAIN

GEORGE I. BURNESTON, III
DIANE L. COLEMAN
BRYAN K. KNEDLER
ELISABETH MACRAE-BOBYNSKYJ
LUCINDA L. SMITH
MICHAEL G. YOUNG
SUSAN G. ZENEL